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CLASSIFICATION
OF THE

Geometrina of North America

WITH
DESCRIPTIONS OF NEW GENERA AND SPECIES

By REV. GEO. D. HULST.

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**A CLASSIFICATION OF THE GEOMETRINA OF
NORTH AMERICA, WITH DESCRIPTIONS
OF NEW GENERA AND SPECIES.**

BY REV. GEO. D. HULST.

As the result of the work of systematists, two methods of classification are found in our lists and text books. The first is in common use in Europe, and is the system of Lederer. The second is in use in America, and is the system of Guenée. Lederer's system, published in 1853, was far in advance of anything published before him, and, as based in large part upon structure, has deserved the respect it has always received. Guenée's system was given a life on this side of the ocean by the fact that Dr. Packard, in his Monograph, closely followed it, and that Monograph has made our lists and given us our names. This system, professedly attempting to cover everything, is exact in nothing, and as a system is absolutely without worth, and, apart from Dr. Packard's following, has never had any recognition.

In 1892, Mr. Meyrick published a "Classification of the Geometrina of the European Fauna" (Trans. Ento. Soc. London, 1892, part 1, pp. 53-140), in which he endeavored to arrange the family on the basis of invariable structure. This classification does not as yet seem to be adopted, but is, in many respects by far the best yet proposed, and is the result of wide comparative study and consistent generalization. It is this system which, in the greater part, I have followed. And yet I have made in one respect at least a radical departure from it. Mr. Meyrick lays down as one of the fundamentals of his classification the following rule: "No genus, family or higher group, is tenable unless distinctly separable from all others by points of structure, which, whether singly or in conjunction, are capable of accurate definition. If a systematist is not able to define by a clear and not simply comparative character, the distinction between two genera, he is bound to merge them together." This rule is a most excellent one, but Mr. Meyrick, in his rigid and consistent application of it, gives it an interpretation not warranted in practice, for he makes not difference in structure, but difference in

structure without the known existence of intermediate forms in nature, to be the application of the rule. As a result some of his genera cover almost subfamily differences, as witness such as *Pseudopanthera* and *Crocota*. All divisions are artificial in theory, and accidental in fact, and it is more natural, and it seems to me more scientific, while using discretion, to consider wide variations in structure as valid bases for genera even though intermediate forms may exist which may be referred with equal propriety to one or to the other.

I have also given more importance to some details of structure than is given by Mr. Meyrick. As an example, my own experience leads me to regard the pencil found on the hind tibiæ of the males of many species as a thoroughly reliable point of structure. It may often be rubbed off, and the groove in which it rests be difficult to discern, but the structure is not variable in the same species.

There are other structural peculiarities which may modify classification in the future. Some of these may be found in the larval and pupal stages, but, apart from what I have noted, nothing has as yet been observed which seems reliable. A character in the imago which may be of greater importance than I have given it, is the peculiar form of the subcostal vein of hind wings near the base. Prof. Comstock, who discovered this peculiarity, makes it of family importance. My own observations lead me to believe it cannot be considered exclusive. First, it is scarcely distinct in some of the Sterrhinæ, and is wanting in some that we must consider true Geometers such as the genera *Mecoceras*, *Melanchroia*, etc., as well as some genera of the Monocteniinæ and Strophidiinæ. On the other hand the tendency to the basal angulation of the costal vein of the hind wings seems to me to be as fully developed in some of the Geometri-form Noctuina, as in the Sterrhinæ and Monocteniinæ, and much more so than in some other genera. In some of the *Catocalæ* this angle is clear, though it is apt to be overlooked, as the vein is very faint, while the vein, which would be vein 9, and which is coincident with 8 just beyond base is very strong, and is ordinarily regarded as the only one.

Very considerable use may in the future be made of modifications of the antennæ, based on a form of structure, so far as I know, not hitherto observed. In the species which have the antennæ bipectinate in the males the position of the pectinations with regard to the segments upon which they stand is very different. In a very few

(*Ripula*) the antennæ are doubly bipectinate, having two pectinations at the summit and two at the base of each segment; this is also the case with the pectinate species of *Erannis*, a fact not heretofore noticed. In many species the pectinations are at the summit of the segments, and in others at the base only. This tendency is shown in the species which do not have bipectinate antennæ, as well as in the females, the tendency of the ciliations being to gather into tufts at both summit and base as in *Ectropis*, etc., or at bottom, or at top only. I have not been able to make any exclusive generalizations as yet, but the Sterrhinæ seem thus to separate from the Geometrinæ, the former having the pectinations at the bottom, the latter at the top of the segments. In the Ennominae the species having the pectinations at the top of the segments generally correspond with those which have the fovea at the base of the fore wings in the male, but this is not always the case. A few species have the antennæ serrate, and a few others have them flattened and more or less lamellate; generally with this structure the antennæ are naked, at least below. I have found only one instance of unipectinate antennæ among our species, and this is the ♀ of *Gonodontis hypochraria* H.-Sch., but I am not sure that any emphasis can be placed upon this fact. In most species the pectinations on one side are shorter than on the other, and in this species in the female the longer pectinations have apparently just begun, or are just losing their existence, while the shorter ones have not begun, or have ceased to be.

There are also very considerable differences in the position and shape of the tibial epiphysis. In many species it is below the middle of the tibia and short. In others it is above and often reaches considerably beyond the end of the tibia; sometimes it is considerably tufted.

The tarsi vary considerably compared with the tibiæ and with each other. They are often spinulated, sometimes strongly so.

These characteristics, so far as my observations go, are comparative only. I have as yet not been able to make use of them in classification, but suggest their variability that the future student may make use of them as a larger and better study of material may warrant.

I have been able to make nothing of the ocelli; other students have seen them in a few species, but I have to confess I have never yet seen the organ developed in a single Geometer, though for the purpose of study I have bleached hundreds of heads, and in some

species for this very purpose. In a very few cases, however, I have found the minute rudiments of maxillary palpi.

I have endeavored to follow strictly the law of priority in generic and specific names, and have therefore, without hesitation, taken Hübner's genera as given in the Verzeichniss. I have not endorsed the names of the "Tentamen," as I can find nothing which shows it to be a publication. It is simply a printed letter, and can have no authority, because it was written in type. I have, however, noted where the "Tentamen" names apply, for the convenience of those who disagree with me in my opinion of their validity.

I have been unable to make very little of the genera of Guenée and Walker, based upon exotic, mostly tropical material. Their diagnoses are in the main without exact reference to structure, and I have been unable to examine their types. I have also made little use of the genera of some later writers, as the structural basis for these genera is the position of various veins which is excessively variable in the same species. The validity of these can only be determined after extensive comparison of structure in the same species, and in species nearly related.

It was the custom of the French Lepidopterists of former times to call the group the Phalænidæ, and in this Guenée was followed by Dr. Packard in his Monograph. *Phalæna*, as used by Linnaeus, is nearly equal to the Heterocera as now used. *Geometer* was the name he gave to group under consideration. Fabricius afterwards ignored this name, and called the group *Phalæna*, but it is clearly a synonym, and so neither it nor its derivatives have any standing. I have given the group superfamily standing, though the most of systematists may not agree with me. But as will be seen I give the group a wider reach than most Lepidopterists.

The Geometrina separate from other groups of the Lepidoptera as follows: The antennæ are never club shaped or fusiform, and they are thus distinguished from the Rhopalocera, Sphingina, and some other groups. The larva have one or more pairs of the anterior abdominal legs wanting, and they are thus distinguished from the Bombycina in the widest reach of that term; vein 5 of the fore wings is from or near the centre of the outer margin of the cell, and they are thus distinguished from the Noctuina. There are only one or two internal veins to the hind wings, and thus, as well as by the peculiarity of the larvæ, they are separated from the Microlepidoptera. In my judgment their nearest relatives are the Noctuina,

though in this opinion I have the sympathy of very few, if, indeed, of any other Lepidopterists.

GEOMETRINA.

Synopsis of families and subfamilies.

Hind wings vein 5 present, strong..... GEOMETRIDÆ.

Hind wings vein absent, or a fold only.....ENNOMIDÆ.

GEOMETRIDÆ.

1. All wings with vein 5 nearer 6 than 4.....GEOMETRINÆ.
Fore or hind wings with vein 5 at middle of cell, or nearer 4 than 6.....2.
2. Hind wings vein 8 coalescing with cell to middle, or if separate, joined with it by a cross-bar at or beyond middle.....3.
Hind wings vein 8 separate from cell or joined at or near base only.....4.
3. Frenulum present.....HYDRIOMINÆ.
Frenulum absent.....DYSPTERIDINÆ.
4. Hind wings 8 shortly joined with cell at or near base.....5.
Hind wings 8 separate from cell.....6.
5. Hind wings joined with cell near base, shortly, then rapidly diverging.

STERRHINÆ.

Hind wings 8 joined with cell at base, then subparallel with it.

MONOCTENIINÆ.

6. Fore wings 7 separate from both 8 and 9.....7.
Fore wings 7 stemmed with 8 and 9.....BREPHINÆ.
7. Fore wings 8 stemmed with 9.....STROPHIDINÆ.
Fore wings 9 separate from 8.....LEUCULINÆ.

ENNOMIDÆ.

1. Hind wings 8 coalescing with cell at base.....FERNALDELLINÆ.
Hind wings 8 separate from cell.....2.
2. Frenulum present.....3.
Frenulum absent.....PALYADINÆ.
3. Antennæ and legs very long; antennæ three-fourths length of fore wings.

MECOCERATINÆ.

Antennæ and legs normal; antennæ never more than two-thirds length of fore wings.....4.

4. Fore wings 7 separate from 8 and 9.....MELANCHROINÆ.
Fore wings 7 stemmed with 8 and 9.....ENNOMINÆ.

DYSPTERIDINÆ.

The Dyspteridinae, with the Hydriominae, are easily separated from the rest of the Geometrina by the coalescing of vein 8 of the hind wings with the cell for half or more of its length, or in exceptional cases in both subfamilies, where 8 does not coalesce with the cell, it is joined by a cross-vein to the cell at or beyond its middle. In both subfamilies vein 5 of the hind wings is developed. The two

subfamilies are very closely related, and the absence of the frenulum merely marks the completion of a tendency shown very distinctly in the nearly allied genera of the Hydriominae, such as on the one hand *Lobophora*, *Trichopteryx*, etc., and on the other *Alsophila*, *Paleacrita* and *Eudule*.

DYSPTERIDINÆ.

Synopsis of Genera.

1. Antennæ of ♂ bipectinate.....1. **Dyspteris**.
Antennæ of ♂ not bipectinate.....2.
2. Hind wings of ♀ partly or not at all developed3.
Hind wings of ♀ developed as in ♂5.
3. Hind wings of ♀ obsolete.....7. **Rachela**.
Hind wings of ♀ partly developed, about as long as thorax.....4.
4. Tongue present, though weak.....5. **Opheroptera**.
Tongue obsolete.....6. **Paraptera**.
5. Fore wings with one accessory cell.....2. **Cysteopteryx**.
Fore wings with two accessory cells.....6.
6. Hind tibiæ of ♂ with hair pencil.....3. **Nyctobia**.
Hind tibiæ of ♂ without pencil.....4. **Cladara**.

1. **DYSPTERIS** Hübn.

Verz. 286, 1818.

Type *D. amata* Cr.

Palpi short; clypeus not tufted; antennæ bipectinate in ♂, simple in ♀; thorax and abdomen untufted; hind tibiæ with all spurs in both sexes; fore wings broad, even, inner margin short, 12 veins, 11 on 10, with one accessory cell; hind wings 8 not anastomosing with cell, but joined in both sexes with it by a cross-vein beyond middle; hind wings of ♂ with vitreous spot along inner margin near base; frenulum wanting; venation of ♂ very much distorted, the cell being very much shortened and drawn in, and veins 1, 2 and 3 obsolete. In ♀ 2 and 3 are present, 4 widely separate from 5, 6 and 7 stemmed.

This genus has heretofore been catalogued with the "Greens" so-called, but beyond question it has no affinities with them.

Species.—*D. abortivaria* H.-Sch.

2. **CYSTEOPTERYX** n. gen.

Type *viridata* Grt.

Palpi short, porrect, quite heavily scaled; front flattened; antennæ ciliate in both sexes; fore tibiæ unarmed; hind tibiæ with end pair of spurs only, without hair pencil in ♂; thorax and abdomen untufted; fore wings 12 veins, one accessory cell, 6 stemmed with 7;

hind wings 8 with cell more than half its length; in ♂ there is a lobe at base along inner margin folded over upwards forming a sort of pocket; frenulum wanting.

Differs from *Trichopteryx* in having only one accessory cell, and from *Philopsia* in that only one pair of spurs is present on hind tibiae, and from both in the absence of the frenulum.

Species.—*C. viridata* Grt.

3. **NYCTOBIA** n. gen.

Type *limitata* Wlk.

Palpi moderate, erect; front not tufted; antennae filiform, ciliate in both sexes; thorax and abdomen untufted; fore tibiae unarmed; hind tibiae with end spurs only; in ♂ there is a slight pencil of long hairs on inner side; fore wings 12 veins, two accessory cells, 6 and 7 stemmed; hind wings 8 with cell to beyond middle, 6 separate from 7; in ♂ there is a folded lobe at base on inner margin above; frenulum wanting.

The hair pencil on the hind tibiae of ♂ is rarely met with in this section of the Geometers. Mr. Meyrick does not consider it a generic character, regarding it as variable and uncertain, but after much comparison my own opinion is, it can be fully relied upon, and is a most excellent limitation. By this *Nyctobia* is separated from *Lobophora* Curt., as well as by the absence of the frenulum.

Species.—*N. limitata* Wlk.

N. fusifasciata Wlk.

4. **CLADARA** n. gen.

Type *atroliturata* Walk.

Palpi short, porrect, rough scaled; tongue developed; front smooth; antennae of ♂ filiform; thorax and abdomen smooth; hind tibiae with one pair of spurs in both sexes, without hair pencil; fore wings with two accessory cells, 12 veins, 6 with 7; hind wings with folded lobe at base above along inner margin in ♂; 8 veins, 6 and 7 separate, 8 with cell to beyond middle; frenulum wanting.

Differs from *Nyctobia* in the absence of the hair pencil on hind tibiae of ♂; from *Trichopteryx* Hubn. in that 8 is joined with cell in hind wings; from *Lobophora* Curt. in that it has one pair of spurs on hind tibiae. From both the latter as well in the absence of the frenulum.

Species.—*C. atroliturata* Walk.

5. **OPHEROPTERA** Hübn.

Verz. 321, 1818.

Type *brumata* L.

Palpi short, porrect, slender; antennæ of ♂ dentate, with fascicles of hairs on each segment; antennæ of ♀ filiform; front smooth; tongue short, weak; hind tibiæ with all spurs; fore wings of ♂ 12 veins, one accessory cell, 6 long stemmed with 7, accessory cell large, 7, 8, 9 and 10 arising from at or near its end; hind wings 8 veins, 3 and 4 widely separate, 5 nearer 4 than 6, 6 and 7 long stemmed, 8 with cell to beyond middle; wings of ♀ partly developed extending about length of thorax; body of ♀ somewhat vermiform; frenulum wanting.

It is doubtful whether this species has even been taken within our limits. I have never seen it myself to be certain of it, but Staudinger catalogues it, doubtfully from Greenland.

Species. — *O. boreata* Hübn.

6. **PARAPTERA** n. gen.Type *danbyi* Hulst.

Tongue wanting; palpi short, slender; antennæ of ♂ with segments round, even, each with two slender fascicles of hairs; ♀ antennæ filiform; clypeus untufted; thorax and abdomen untufted, in ♀ more closely joined, somewhat vermiform; hind tibiæ with one pair of spurs only, or very rarely with upper pair slightly developed; fore wings of ♂ 12 veins, with one accessory cell, 5 nearer 4 than middle of cell, 6 long stemmed with 7, cell large, 1a and 1b both present, strong; hind wings 5 much nearer 4 than middle of cell, 6 and 7 long stemmed, 8 with cell more than half its length; ♀ with wings partly aborted, these reaching somewhat beyond thorax, and being about the size of the ordinary wings on emergence from pupa; frenulum wanting.

Very close to *Opheroptera*, differing in tongue, antennæ of ♂, and spurs of hind tibiæ, though in none of these in a very marked degree.

Species. — *P. danbyi* Hulst, n. sp.

P. danbyi n. sp. ♂ expands 36–40 mm. — Palpi fuscous gray above, edged with gray to light gray beneath; clypeus smoky black; antennæ fuscous, lighter towards end; thorax blackish, with a lining to collar, patagiæ and posterior portion of light gray. Abdomen light gray with a fuscous shade sprinkled with a few black scales, and with a shade of yellowish on anterior segment. Wings crossed by a number of evenly separated wavy black lines, the darker or lighter

interspaces forming bands, and these colors in general alternating, the extreme base being lighter, and the two at the middle of the wing being also lighter, but separated by a black line with a blackish outer shading; the bands beyond middle become a little broader at costa, so that they become finally parallel with outer margin, the submarginal one being narrow, forming a distinct denticulate white line; other specimens have thorax, abdomen and wings darker, the lighter spaces being gray and the darker grayish black; there is also some variation in the width of the bands, which, from the extreme base, are nine in number; the veins forming the discal cell are somewhat emphasized by blackish, which is more prominent on the median. Hind wings with lines corresponding to the fore wings, but less distinct, becoming obsolete towards base, and with interspaces more uniform light fuscous, except that the lines have a dark outer shading.

Female varying in colors of thorax and abdomen from light gray to dark fuscous, the thorax being the darker, at times almost blackish, and the abdomen sometimes annulate with gray. Wings gray, with a deep black band beyond middle.

Described from four males and five females, one pair sent by Prof. Fletcher, the rest from Mr. W. H. Danby, all of these taken by Mr. Danby at Victoria, Brit. Col., from early in November to about middle of December. The females seem to vary considerably in size, some being hardly larger than the ♀ of *Rachela bruceata*, while others are almost as large as the ♀ of *Erannis tiliaria*. The specific name is given in honor of its discoverer, Mr. Danby.

7 **RACHELA** n. gen.

Type *bruceata* Hulst.

Palpi small, slender; tongue wanting; clypeus rather broad, scaled; antennæ ♂ even, each segment with two fascicles of hairs on each side; thorax and abdomen untufted; hind tibiae with two pairs of spurs; antennæ of ♀ filiform, very slightly pubescent; thorax and abdomen of ♀ closely joined, somewhat vermiform; fore wings ♂ broad, even, 12 veined, 1*a* and 1*b* present, strong, 3 widely separate from 4, 5 nearer 4 than 6, 6 long stemmed with 7, 10 on 11 anastomosing with 9 forming a long accessory cell, 11 from cell, 12 free; hind wings 8 veins, 1*a* and 1*b* present, strong, 3 and 4 widely separate, 6 and 7 long stemmed, 8 anastomosing with cell to beyond middle; wings of ♂ almost entirely lacking.

Name given in honor of Mrs. Rachel Bruce, whose husband, Mr. David Bruce, has done so much towards a knowledge of the Lepidoptera of the central Rocky Mountain region, and to whom I am indebted for many favors.

Species.—*R. bruceata* Hulst.

R. hyperborea Hulst, n. sp.

✓ *R. occidentalis* Hulst, n. sp.

R. tatipennis Hulst, n. sp.

R. occidentalis n. sp.—Expands 32-34 mm.

I give this name to an insect of which I have received many specimens from Victoria, Brit. Col. It is very uniform in appearance, and without doubt nearly related to *R. bruceata*. It is, however, in the ♂ uniformly darker on all wings, and the fore wings have the apex more rounded and the inner margin shorter. The inner angle is thus broader and the wing more oval in shape. The ♀ is blackish gray instead of fuscous.

R. latipennis n. sp.—Expands 28 mm.

I give this name to a species received from California, of which I have no females. The wings are much broader than in *R. bruceata* or *latipennis*, and the apex much less extended. It has much the same markings as *bruceata*, but they are more decided in color the lines of the hind wings being especially pronounced. In general appearance it approaches *Opheroptera brumata* of Europe.

R. hyperborea n. sp.—Expands 23 mm. Very much in appearance like *R. latipennis*, with narrower wings, the two outer lines quite distinct, the central band obsolete, and the vestiture more hairy, and uniformly of very much smaller size.

I suspect this may be a subarctic form of *R. bruceata*. My specimens of *R. hyperborea* are all from Alaska, and are very uniform in size and appearance, and are all smaller than any specimen of *R. bruceata* I have ever seen.

HYDRIOMINÆ.

The Hydriominæ are, with the Dyspteridinae, in the main very easily and clearly distinguished by the peculiar anastomosing of vein 8 of the hind wings with the cell. The exceptions, where the vein is separate, but joined by a cross-bar beyond the middle of the cell are peculiar, but can in no wise be made another subfamily as the females are normal. As noticed by Mr. Meyrick the most of the species with this peculiar structure have the inner margin in the ♂ with a fold or pocket, and the anterior part seems to be broadened and the anterior veins separated as a compensation.

A second exception which, as has been seen, I have made a subfamily is in the case of a few genera where the frenulum is wanting. This I have called the Dyspteridinae, from *Dyspterus*, the typical genus.

Another exception which I have placed with the Geometrinæ is a genus of the "greens" which differs from this subfamily and agrees

with the Geometrinæ in the position of vein 5 in the fore and hind wings, as well as in other very important particulars. A final exception is *Fernaldella*, which is immediately distinguished by the absence of vein 5 in the hind wings, thus belonging to the Ennomidæ.

The venation of one genus (*Zenophleps*) is very peculiar, 6 and 7 being stemmed and separate from 8 in the fore wings. It is close to the European genus *Cataclysmæ* Hb., and I agree with Mr. Meyrick its appearance is due to the obsolescence of the posterior wall of the second accessory cell. It might very properly be made the basis of a separate subfamily.

In the Hydriminiæ the tongue is with rare exceptions present. In the fore wings there is generally one inner vein 3 and 4 are separate, and 12 is free. The position and relations of veins 9, 10, 11 and 12 are very uniform and unvarying. In the hind wings 3 and 4 are generally separate, and 6 and 7 stemmed. In the description of genera the general form is understood, unless otherwise noted.

HYDRIMINÆ.

Synopsis of Genera.

1. Fore wings 6 and 7 stemmed separate from 8.....28. **Zenophleps.**
Fore wings 7 stemmed with 8.....2
2. Fore wings 11 veins.....22. **Catoclothis.**
Fore wings 12 veins.....3
3. Hind tibiæ with end spurs only.....4
Hind tibiæ with middle spurs also.....6
4. Fore wings with one accessory cell.....14. **Gymnocelis.**
Fore wings with two accessory cells.....5
5. Fore tibiæ clawed.....8. **Scelidacantha.**
Fore tibiæ not clawed.....6. **Agin.**
6. Fore wings with one accessory cell.....7
Fore wings with two accessory cells.....18
7. Antennæ of ♂ bipectinate.....8
Antennæ of ♂ not bipectinate.....10
8. Vestiture of wings hairy.....39. **Psychophora.**
Vestiture of wings scaly.....9
9. Palpi moderate, scarcely beyond head.....17. **Venusia.**
Palpi long, much beyond head.....43. **Loxifidonia.**
10. Hind wings of ♂ with lobe at base on inner margin.....5. **Philopsia.**
Hind wings of ♂ without lobe at base on inner margin.....11
11. ♀ with wings partly or not at all developed.....12
♀ with wings developed.....13
12. Segments of abdomen spined.....1. **Paleacrita.**
Segments of abdomen not spined.....2. **Alsophila.**
13. Clypeus flat.....14
Clypeus more or less rounded.....15

14. Vestiture of wings hairy, thin.....3. **Eudule.**
Vestiture of wings scaly, normal.....18. **Euchæca.**
15. Abdomen with all segments tufted dorsally.....16.
Abdomen not with all segments tufted dorsally.....17.
16. Fore wings 11 anastomosing with 12....13. **Chloroclystis.**
Fore wings 11 separate from 12.....15. **Tephroclytis.**
17. Palpi long; antennæ of ♂ serrate.....38. **Eurhinoëa.**
Palpi moderate; antennæ of ♂ filiform.....27. **Plemyria.**
18. Antennæ of ♂ bipectinate.....19.
Antennæ of ♂ not bipectinate.....22.
19. Fore wings with hair pencil below near base.....26. **Neolexia.**
Fore wings without hair pencil below near base.....20.
20. Palpi long.....21.
Palpi moderate or short.....42. **Xanthorhœe.**
21. Hind wings 6 and 7 separate.....24. **Phylace.**
Hind wings 6 and 7 stemmed.....41. **Ersephila.**
22. Hind wings 8 not coalescing with cell, but joined with it by a cross-vein at middle or beyond, at least in ♂.....23.
Hind wings 8 with cell to middle or beyond.....24.
23. Hind wings of ♂ with vitreous spot on inner margin above; palpi erect.
10. **Nannia.**
Hind wings without vitreous spot; palpi porrect....11. **Heterophleps.**
24. Fore tibiæ clawed at end.....25.
Fore tibiæ not clawed at end.....26.
25. Fore wings of ♂ with fold and pocket on inner margin beneath.
4. **Eucestia.**
Fore wings of ♂ without fold or pocket.....36. **Marmopteryx.**
26. Hind wings of ♂ with pocket or fold on inner margin.....27.
Hind wings of ♂ without pocket or fold on inner margin.....30.
27. Hind wings of ♂ with fold forming pocket.....9. **Carsia.**
Hind wings of ♂ with fold only.....28.
28. Hind wings of ♂ with fold at base, with hair tuft beneath.....29.
Hind wings of ♂ with fold at base, without hair tuft beneath.
7. **Tallegda.**
29. Abdomen of ♂ with lateral tufts at end.....20. **Coryphista.**
Abdomen of ♂ without lateral tufts at end.....21. **Calocalpe.**
30. Thorax and front very hairy.....40. **Trichochlamys.**
Thorax and front scaly.....31.
31. Fore wings of ♂ with hair pencil below near base.....25. **Eustroma.**
Fore wings of ♂ without hair pencil below near base.....32.
32. Anal claspers of ♂ large, exerted.....23. **Philereme.**
Anal claspers of ♂ normal.....33.
33. Front flat.....19. **Asthena.**
Front more or less rounded.....34.
34. Hind wings 3 and 4 stemmed.....12. **Nycterosca.**
Hind wings 3 and 4 separate.....35.
35. Thorax, abdomen and wings very closely short scaled.35. **Melanoptilon.**
Thorax, abdomen and wings normal.....36.
36. All segments of abdomen tufted dorsally.....16. **Eucymatoge.**
One or two basal or generally no segments of the abdomen tufted.....37.

37. Antennæ of ♂ serrate38.
 Antennæ of ♂ not serrate39.
 38. Antennæ of ♂ with fascicles of hairs on each segment...37. **Gypsochroa.**
 Antennæ of ♂ ciliate29. **Enchoria.**
 39. All wings scalloped on outer margins.....33. **Triphosa.**
 All wings even, or hind wings only wavy.....40.
 40. Antennæ of ♂ flattened41.
 Antennæ of ♂ not flattened42.
 41. Thorax tufted posteriorly.....32. **Hydriomena.**
 Thorax not tufted posteriorly.....34. **Cœnocalpe.**
 42. Antennæ of ♂ with fascicles of hairs on each segment.
 30. **Percnoptilota.**
 Antennæ of ♂ ciliate31. **Mesoleuca.**

1. PALEACRITA Riley.

Trans. Acad. Sci. St. Louis, iii, 273, 1875.

Type *vernata* Harr.

Tongue wanting; palpi very short; clypeus very broad, untufted, scaled; antennæ of ♂ with segments swollen, obtusely or bluntly dentate, with a fascicle of hairs on each protuberance; those of ♀ ciliate filiform; thorax of ♂ with low posterior tuft, ♀ untufted. Abdomen untufted, in both sexes with segments armed with two rows of spines turned backward, somewhat curved. In ♀ thorax and abdomen enlarged, scarcely separated, somewhat vermiform; fore tibiæ unarmed, hind tibiæ with two pairs of spurs; fore wings of ♂ 12 veins, vein 1 with long furcation at base, discal cell long, 6 widely separate from 7, 10 and 11 from cell, accessory cell large; hind wings 8 veins, 3 widely separate from 4, 5 much nearer 4 than middle of cell being in this respect quite noctuiform, 6 and 7 separate, 8 anastomosing with cell to beyond middle; ♀ wingless; larva with 10 legs.

The genus is remarkable for the spinulation of the abdomen in which respect it agrees with only one or two genera in the Ennominae. It is closely allied to *Alsophila* Hüb.

Species.—*P. vernata* Harr.

2. ALSOPHILA Hüb.

Verz. 320, 1818.

Type *æscularia* Schif.

Anisopteryx Steph., Cat. 116, 1829, type *æscularia* Schif.

Palpi very short, slender; tongue wanting; front broad, smooth; antennæ subdentate, with a fascicle of hairs on summit of each dentation; thorax and abdomen untufted, in ♀ closely joined somewhat

vermiform; hind tibiæ with all spurs; fore wings of ♂ 12 veins, two strong inner veins, 3 and 4 widely separate, cell large; hind wings 8 veins, 3 and 4 widely separate, 5 at middle of cell, 6 and 7 stemmed, 8 with cell to beyond middle; wings of ♀ nearly or quite wanting; larva 12 legs.

Mr. Meyrick calls this genus *Erannis* Hüb., but it seems to me incorrectly. Hübner's genus *Erannis* has four species under it, three of which, and these are the first in order, are congeneric, and therefore typical of the genus, and there can be no question this was his intention. *Defoliaria* is the type species; another genus of Hübner, *Alsophila*, has as its type *vesicularia* Schiff., and this is congeneric with the fourth species under *Erannis*. There can be no doubt as to the application and limitations of the two terms. Latreille applied the name *Hybernia* to Hübner's *Erannis*, but it is a synonym only. Stephens, in his catalogue of British insects, applied *Erannis* to that to which Hübner gave the name *Alsophila*, and this has made confusion. But both of Hübner's genera must stand as there is no doubt concerning his meaning, *Hybernia* Latr. being a synonym of *Erannis* and *Anisopteryx* Steph. being a synonym of *Alsophila*.

I cannot agree with Mr. Meyrick in his reference of this genus to the Monocteniinæ. The most characteristic venation is the merging of vein 8 of hind wings with the cell. If this is to be ignored, the lack of the accessory cell would be no more reason why it should be placed with the Monocteniinæ than with the Ennomiinæ. If its place be not here, as I have no doubt it is, then in view of its various resemblances to *Erannis* in Hübner's sense, it ought to go with the Ennomiinæ.

Species.—*A. pometaria* Peck.

3. **EUDDLE** Hüb.

Zutr. ii, p. 14, n. 127.

Ameria Walk., C. B. M. pt. 2, 554.

Euphanessa Pack., Proc. Ent. Soc. Phil. iii, 102. Type *mendica* Wlk.

Palpi short, slender, long haired below; tongue developed; front flat, smooth; antennæ of ♂ closely filiform. Abdomen slightly tufted at end; hind tibiæ with all spurs. Wings broad, even, semi-hyaline, vestiture thin and hairy; fore wings 12 veins, one accessory cell very large, 6 stemmed with 7, 8, 9 and 10 from a point, or nearly so; hind wings 8 veins 3 and 4 widely separate, 6 and 7 stemmed, 8 with cell nearly its whole length.

Species.—*E. mendica* Walk.

E. meridiana Slosson.

E. unicolor Robs.

E. texana French.

4. **EUCESTIA** Hüb.

Verz. 322, 1818.

Type *spartiata* Fuesl.

Lithostegæ Hüb., Verz. 337, 1818, type *duplicata* Hüb.

Aplocera Steph., Cat. 141, 1829, type *plagiata* L.

Anaitis Dup., Hist. Nat. viii, 350, 1829, type *plagiata* L.

Chesias Dup., Hist. Nat. viii, 497, 1829, type *spartiata* Fuesl.

Palpi moderate, heavily scaled, porrect; clypeus rounded, prominent; antennæ ciliate in both sexes; thorax and abdomen untufted; fore tibiæ with a stout claw, tibiæ short, stout; hind tibiæ with all spurs; fore wings 12 veins, two accessory cells, 6 and 7 stemmed; hind wing 8 with cell more than half its length; in the ♂ there is a transparent fovea near base along inner margin beneath, bordered by a membranous ridge forming a sort of pocket.

Species.—*E. rotundata* Pack.

5. **PHILOPSIA** n. gen.

Type *nivigerata* Walk.

Palpi short, somewhat drooping; front flattened, smooth; antennæ flattened, simple, minutely pubescent; thorax and abdomen untufted; fore tibiæ unarmed, hind tibiæ with all spurs; fore wings 12 veins, one accessory cell, 6 short stemmed with 7; hind wings 8 with cell more than half its length, the wings in ♂ with a lobe at base along inner margin; this lobe joined at base is separate from the main wing towards its end, and 3 and 4 are widely separate, as are 6 and 7; in ♀ 3 is close to 4, 6 and 7 separate.

Differs from *Trichopteryx* Hüb. in having only one accessory cell, and in the fact that it has two pairs of spurs on hind tibiæ. In the former respect it also differs from *Lobophora* Curt.

Species.—*P. nivigerata* Wlk. (*inæqualiata* Pk.)

6. **AGIA** n. gen.

Type *eborata* Hulst.

Palpi moderate, ascending; front smooth; antennæ filiform, ciliate in both sexes; thorax and abdomen untufted; fore tibiæ unarmed; hind tibiæ with end spurs only, and in ♂ with hair pencil; fore wings 12 veins, two accessory cells, 6 and 7 stemmed; hind wings 8

with cell to beyond middle, 6 separate from 7; in ♂ there is a folded lobe at base on inner margin above; frenulum present.

Very close to *Nyctobia*, differing mostly in the presence of the frenulum. It is separated from *Lobophora* in having only one pair of spurs on hind tibiae of ♂. From *Talledega* it differs in having a hair pencil on hind tibiae of ♂.

Species.—*A. eborata* Hulst, n. sp.

A. eborata n. sp.—Expands 25 mm. Palpi long, slender, drooping, black, a few white scales on extreme tip; front fuscous gray; thorax ocher fuscous, bitufted posteriorly on each side dorsum, each tuft black in front. Abdomen blackish gray, interlined, the first segment nearly black; fore wings whitish ocher, a black basal line angulated at cell; a broad median blackish band consisting of black scales irregularly mixed with scales of ground color, somewhat definitely limited on either side by black lines which are not continuous; inner line dentate, marked outwardly with jet-black dashes on veins; outer line scalloped, marked inwardly by jet-black dashes on veins, separated from corresponding dashes of median line by a central cross-line of ground color not sharply defined; the ground color divides the outer line at base of veins 3 and 4, forming a deep narrow sinus; the ground color also prevails narrowly behind subcostal vein; two submarginal lines of black dots one on each vein, the whole space clouded with blackish scales; hind wings even fuscous, with a faint extra discal darker line, edged outwardly with lighter fuscons; beneath fuscous, somewhat clouded, an outer lighter band parallel with margin showing on fore wings, and an extra discal darker band showing on hind wings.

Mitchell County, North Carolina, July, from Mr. Philip Laurent.

7. TALLEDEGA n. gen.

Type *montanata* Pack.

Palpi short, porrect, or drooping; front flat, short scaled; antennae filiform pubescent; thorax untufted. Abdomen with slight tufts on segments; fore tibiae unarmed, hind tibiae with two pairs of spurs, without hair pencil; fore wings 12 veins, two accessory cells, 6 scarcely stemmed with 7; hind wings 8 veins, the inner margin in the ♂ being folded over above, and this fold separated from wing to base forming thus a detached piece over the posterior part of the wing; venation consequently distorted; 8 joined near base to cell, and coincident to beyond middle.

Very like *Lobophora* Curt., differing in the absence of hair pencil on hind tibiae of ♂.

Species.—*T. montanata* Pack.

T. tabulata Hulst, n. sp.

T. tabulata n. sp.—Expands 28 mm. About the size, and wings about the shape of *T. montanata* Pack., to which, in appearance, it is closely related; palpi, head and thorax blackish gray. Abdomen more fuscous; fore wings of a light

clear gray, peppered with black atoms basally and along costa; three subquadrate blackish costal blotches not sharply defined, basal, central and outwardly in the places corresponding to the cross-lines of *L. montanata*; these are not followed by any indications of cross-lines or of rows of spots across the wings; discal spots large, black, distinct, lengthened as in *L. montanata*; hind wings even, glistening white, with dark discal spots; beneath light bright gray, the markings of the fore wings faintly showing.

Alert Island, Alaska. Differing from *T. montanata* mostly in the decided difference of the ground color, the lack of black dots on the veins of fore wings, and the lack of the lines or rows of dots across the fore wings. The lobe on the hind wings of the ♂ is also somewhat different in structure.

8. **SCELIDACANTHA** n. gen.

Type *triseriata* Pack.

Palpi moderately long, ascending, heavily scaled; clypeus scale tufted, rounded, projected forward below; antennæ simple, flattened, finely and evenly pubescent below; thorax and abdomen untufted; fore tibiæ short, armed at end with prominent claw; hind tibiæ with one pair of spurs; fore wings two accessory cells, 12 veins, 6 short stemmed with 7; hind wings vein 1 wanting, its place being taken by a basal lobe beneath, 3 and 4 separate, 6 and 7 stemmed, 8 starting wide from cell, joining it one-third out, then coincident with it nearly to end.

Differs from *Eucestia* Hüb. in having one pair of spurs on hind tibiæ.

Species.—*S. triseriata* Pack.

S. virginata Graef.

9. **CARSIA** Hüb.

Verz. 336, 1818.

Type *paludata* Thun.

Larissa Curt., Brit. Ent. vii, 324, 1830, type *paludata* Thun.

Celma Steph., Ills. iii, 242, 1831, type *paludata* Thun.

Palpi moderate, porrect; front somewhat prominent; antennæ filiform, ciliate in both sexes; thorax and abdomen untufted; fore tibiæ unarmed; hind tibiæ with all spurs; fore wings 12 veins, two accessory cells; hind wings with cell to beyond middle; in ♂ with a transparent fovea near base along inner margin, bordered with a membranous ridge forming a pocket, 6 and 7 stemmed.

Species.—*C. paludata* Thun.

10. **NANNIA** n. gen.Type *refusata* Wlk.

Palpi erect; front flat, short scaled; antennæ in ♂ fasciculate pubescent; thorax and abdomen untufted; fore wings broad, rounded, 12 veins, two accessory cells; hind wings 8 joined with cell by cross-vein beyond middle in both sexes, 6 and 7 stemmed; in ♂ there is a fovea beneath along inner margin, about one-third out from base; fore tibiæ unarmed; hind tibiæ with all spurs and without hair pencil.

Near *Heterophleps* H.-Sch., but sufficiently distinct in the erect palpi and the presence of the fovea in hind wings of ♂.

Species.—*N. refusata* Wlk. (*harveiata* Pk.)

N. morensata Hulst, n. sp.

N. morensata n. sp.—Expands 30 mm. Palpi and front dark sordid fuscous; antennæ a little lighter; thorax same color as front, but with ends of patagiæ lighter, becoming almost dull white at extremities. Abdomen dark fuscous, but clearer in color, segments edged with somewhat light color; fore wings sordid fuscous, unevenly and irregularly broken with lighter shadings, which can be traced as indistinct indeterminate broadish cross-lines, the outer one most apparent, yet very indeterminate, well out towards the margin and parallel with the outer edge of the wing; marginal space and base more solidly of the ground color; fringe of the color of the outer part of the wing at base becoming whitish at outside; hind wings a little lighter than fore wings, of the same obscure, somewhat broken fuscous, somewhat darker outwardly, with a darker marginal line; fringes as on fore wings; beneath on all wings lighter and clearer, more even in color, darker outwardly, with the extreme edge lighter and ochreous shaded, this color showing along costa and on apical space of fore wings.

One ♀, Wisconsin, from Mr. F. Rauterberg.

11. **HETEROPHLEPS** H.-Sch.

Auseur, Schmet. p. 80, 1855.

Type *triguttata* H.-Sch.

Palpi short, fine, porrect; tongue strong; clypeus fine scaled, slightly bulging; antennæ of ♂ with two fascicles of hairs on each segment; thorax and abdomen untufted; fore wings 12 veins, two accessory cells, 6 separate from 7; hind wings ♂ 6 veins, 1 and 2 wanting, 6 widely separate from 7, inner margin of wing with the edge folded over upwards without vitreous fovea; in ♀ 8 veins, 6 and 7 close together, the wings without fold; in both sexes 8 not anastomosing with cell, but joined beyond middle with a cross-vein.

Species.—*H. triguttaria* H.-Sch.

12. **NYCTEROSEA** n. gen.Type *brunneipennis* Hulst.

Palpi moderately long, porrect or drooping; antennæ simple, with fascicles of hairs two on each segment. Abdomen with segments tufted. Legs rather long, hind tibiæ with two pairs of spurs; fore wings 12 veins, two accessory cells, 6 short stemmed with 7; hind wings small, 8 veins, cell rather short, 3 and 4 stemmed, 6 and 7 stemmed, 8 with cell nearly its whole length.

Species.—*N. brunneipennis* Hulst, n. sp.

N. brunneipennis n. sp.—Expands 27 mm. Palpi, head and antennæ fuscous; thorax and abdomen ochreous fuscous, the ochreous tint more decided on the abdomen; fore wings ochreous brown crossed by a number of mostly subparallel wavy cross-lines; two of these are near the base, another about one-third out, and following this on middle field two separate at costa and narrowing towards inner margin, whose undulations are opposite to each other; these inclose a blackish spot irregular in outline, extending from costa to below submedian vein, and again appears in a rounded blackish spot near inner margin; after two faint scalloped lines is one darker, more sharply outlined, the line being more emphasized below middle, and there at veins 3, 4 and 5 followed by faint whitish spots; the brown of the wings is also more decided in this part of the wings; faint marginal shadings with a blackish subapical cloud running inwardly and posteriorly, this having on its outer margin two or three faint whitish spots: hind wings concolorous with fore wings, but lighter anteriorly and basally, with two faint blackish middle cross-lines; another still further out edged with whitish, and a row of faint whitish spots in the brownish submarginal space; a marginal broken black line on all wings; beneath very much as above, but the central cloud of fore wings wanting and the cross-lines more indistinct or lost altogether, except the outer central one on both wings.

One ♂, Alameda County, California. By Dr. C. V. Riley from the U. S. Museum collection.

13. **CHLOROCLYSTIS** Hüb.

Verz. 323, 1818.

Type *coronata* Hüb.

Palpi moderate, porrect; tongue developed; front with short tuft of scales; antennæ of ♂ filiform, ciliate; thorax smooth. Abdomen with tuft dorsally on each segment; hind tibiæ with two pairs of spurs; fore wings one accessory cell, 12 veins, 11 anastomosing with 12; hind wings 6 and 7 stemmed, 8 with cell to beyond middle.

Differs from *Tephroclystis* (*Eupithecia*) in that vein 11 of fore wings coalesces with 12.

Species.—*C. inconspicua* Hulst, n. sp.

C. inconspicua n. sp.—Expands 22 mm. Head, thorax and abdomen dull dark fuscous, fifth segment of abdomen with black tuft. Wings somewhat extended, hind wings scalloped; fore wings with basal geminate line beginning at costa one-quarter out, and rounding to inner margin at base; an outer heavier, geminate, black wavy line beginning three-quarters out, running to inner margin a little more inwardly than line of outer margin of wings, its largest bend being just beyond discal spot, which is round, black, distinct: a marginal row of black dots; hind wings with two faint outer lines: marginal line black, fine; discal spot almost obsolete; beneath fuscous overlaid with a powdering of darker fuscous scales.

California. I have the ♀ only.

14. **GYMNOCELIS** Mab.

Ann. Soc. France, p. 77, 1869.

Type *pumilata* Hüb.

Pasiphila Meyr., Trans. Ent. Soc. London, pt. 3, 191, 1888, type *lepta* Meyr.

Palpi moderate, porrect; antennæ of ♂ filiform, ciliate; tongue developed; front with cone of scales; thorax smooth. Abdomen with dorsal tufts on each segment; hind tibiæ in both sexes with end pair of spurs only; fore wings 12 veins, one accessory cell, 11 sometimes anastomosing with 12; hind wings 6 and 7 stemmed, 8 with cell to beyond middle.

Differs from *Tephroclystis* in that there is but one pair of spurs on the hind tibiæ.

Species.—*G. inferior* Hulst, n. sp.

G. gypsata Grt.

G. desperata Hulst, n. sp.

G. minuta Hulst, n. sp.

G. inferior n. sp.—Expands 20 mm. Palpi rather short, stout, dark fuscous; thorax and abdomen dark fuscous, basal segment of abdomen blackish; fore and hind wings even dark fuscous with a slight brownish tint; fore wings with a basal rounded black line, a geminate discal line bent sharply at and including discal spot, with an inward angle at submedian vein, then with another bend around to margin, an extra discal line beginning at costa just beyond discal spot, making an angle a little less than a right angle beyond discal spot, thence in a straight line to inner margin; an outer submarginal shade: hind wings with two faint extra discal, dark, rounded lines; discal spots dark, not distinct; marginal lines broken, black; beneath even dark smoky fuscous, the hind wings showing somewhat darker on basal half.

California. From Hy. Edwards.

G. desperata n. sp.—Expands 17–19 mm. Palpi medium long, heavy, blackish; front dark gray, black below, conical tufted; thorax black by collar, otherwise light gray. Abdomen gray, second basal segment blackish; fore wings whitish, costal edge blackish, more pronounced at beginning of cross-lines; two

subobsolete basal lines: an even, broad, black line reaching from costa outward nearly to discal spot, then turning back at an angle a little more acute than a right angle, straight to inner margin; a faint line bending just beyond and around discal spot; an outer well-marked black line; outer space broken, dark fuscous; hind wings with black band of fore wings extended close to base across the wing meeting the black second segment of abdomen; outer lines also present to correspond with fore wings; all discal spots and marginal lines distinct black; beneath more fuscous, the middle band absent, the outer lines showing.

Blanco County, Texas, October.

G. minuta n. sp.—Expands 15–17 mm. Palpi rather short, quite stout, dark gray; front blackish or dark gray above and below, white in middle; thorax and abdomen light gray, the latter blackish gray on second segment; fore wings rather extended, light gray or whitish, darkened with bluish or dark fuscous scales showing especially on outer middle and marginal spaces forming between them a light cross-line, often indistinct, forming nearly a right angle beyond discal spot and running thence straight to inner margin; marginal line fine, black; discal spot black, distinct; hind wings whitish, cross-lines very faintly indicated a little darker along inner margin; marginal line black; discal spots not very distinct; beneath light cinereous, slightly shaded with darker color.

Argus Mountains, California, April. From Dr. C. V. Riley.

15. **TEPHROCLYSTIS** Hüb.

Verz. 323, 1818.

Type *psillata* Fab.

Dyscymatoge Hüb., Verz. 324, 1818, type *innotata* Hüfn.

Tarachia Hüb., Verz. 324, 1818, type *castigata* Hüb.

Arcyonia Hüb., Verz. 335, 1818, type *venosata* Fab.

Leucocora Hüb., Verz. 325, 1818, type *succenturiata* L.

Eupithecia Curt., Brit. Ent. ii, 64, 1825, type *linariata* Fab.

Palpi short to long, slender to heavy, porrect or drooping; front not strongly tufted; antennæ filiform, ciliate in both sexes; thorax untufted. Abdomen with tuft on each segment dorsally; fore tibiae unarmed, hind tibiae with all spurs; fore wings 12 veins, two accessory cells; hind wings 8 with cell to beyond middle, 6 and 7 separate or stemmed.

A large genus as defined, consisting mostly of small species. The species so gradually merge into one another in structure, and are so largely midway between the extremes that I have not attempted any closer limitations, and so do not give a more exact generic diagnosis.

Species :—

T. misturata Hulst, n. sp.*T. nebulosa* Hulst, n. sp.*T. scriptaria* H.-Sch.*T. implicata* Wlk.*T. luteata* Pack.*T. hyperboreata* Stgr.*T. edna* Hulst, n. sp.*T. ornata* Hulst, n. sp.*T. miserulata* Grt.*T. interrupto-fasciata* Pack.*T. leucata* Hulst, n. sp.*T. inornata* Hulst, n. sp.*T. allicapitata* Pack.*T. rotundopennata* Pack.*T. annulata* Hulst, n. sp.*T. flavigutta* Hulst, n. sp.*T. coloradensis* Hulst, n. sp.*T. sierræ* Hulst, n. sp.*T. cretata* Hulst, n. sp.*T. absynthiata* L.*T. fumosa* Hulst, n. sp.*T. longipalpata* Pack.*T. mæstosa* Hulst, n. sp.*T. nimbicolor* Hulst, n. sp.*T. zygædenata* Pack.*T. nimbose* Hulst, n. sp.*T. longidens* Hulst, n. sp.*T. multistrigata* Hulst, n. sp.*T. multiscripta* Hulst, n. sp.*T. stellata* Hulst, n. sp.*T. obscurior* Hulst, n. sp.*T. bivittata* Hulst, n. sp.*T. behrensata* Pack.*T. unicolor* Hulst, n. sp.*T. subapicata* Guen.*T. cestata* Hulst, n. sp.*T. nevadata* Pack.*T. implorata* Hulst, n. sp.*T. rureocostaliata* Pack.

T. misturata n. sp.—Expands 16–18 mm. Palpi medium long, rather heavy, dark fuscous; front, thorax and abdomen fuscous gray; fore wings rather narrow, dark fuscous gray; an indistinct blackish rounded band within discal spot, and a faint blackish line rounded beyond it, this sometimes showing in blackish spots only on veins; discal spots black, distinct; hind wings a little lighter than fore wings, darker outwardly, a faint dark line beyond discal spot and another submarginally; beneath dark fuscous, the outer lines showing on all wings, the basal lines of fore wings showing by spots on costa.

Soda Springs, California, in August and September, from Dr. Behrens; also from Hot Springs, New Mexico, in September.

T. nebulosa n. sp.—Expands 18 mm. Palpi with black and fuscous scales intermixed; thorax dark fuscous. Abdomen blackish, interlined with blackish gray; fore wings rather narrow, rounded at apex, dark fuscous gray, slightly frosted, with very faint indications of cross-lines on median field, a faint, slightly lighter bent band beyond discal spot, and a faint whitish marginal line showing mostly in a lightening of the veins; hind wings color of fore wings, lighter basally, inner margin checkered with beginnings of otherwise obsolete lines; discal spots on all wings distinct, black, rather large; beneath lighter in color, with dark cross-lines quite distinct, especially at beginning on costa, the extra discal forming a large black spot on costa; all discal spots enlarged, somewhat diffuse.

New York, New Jersey, Texas. The Texas specimens taken in April and May.

T. edna n. sp.—Expands 20–22 mm. Palpi, front, thorax and abdomen clear black, slightly mixed with gray scales. Wings light gray, much overlaid

with blackish, rounded, with inner lighter line; the band is broad, rounded at disc, nearly the same width across the wing; outer space blackish, with lighter included scalloped line; marginal line black; hind wings with extra discal black line, strongly bent beyond discal spot; outer margin blackish, discal spots black, distinct on both wings, though less conspicuous in the blackish band of fore wings; beneath with markings above shadowed; hind wings white, with rounded black line beyond disc and along margin.

Glenwood Springs, Colorado. From Dr. Barnes, taken August 18th; also from Mr. Bruce.

T. ornata n. sp.—Expands 18-22 mm. Very much in appearance in some specimens as *T. edna* Hulst. Palpi, however, very long, beak-like, while in *edna* they are moderate; outer line of median field rounded, wavy, while in *edna* it is much straighter; middle field generally not strongly marked with black, while in *edna* it is strongly marked and often a broad black band.

The two species both vary very considerably in depth of color and to some extent in the direction of the outer lines, but are easily distinguished by the difference in the length of the palpi.

Colorado, Mr. Bruce; also from Dr. Barnes from Glenwood Springs, Colorado; taken in August.

T. leucata n. sp.—Expands 20 mm. Palpi middling long, ocher fuscous; front tufted, clay-white; thorax and abdomen ocher white, with a considerable fuscous stain; all wings nearly uniform dull white, with numerous cross-lines, mostly made up of black dots on veins, these showing in lengthened black spots along costa of fore wings, seven or eight in number, three being much larger and more distinct than the others, and all these being at the beginning of cross-lines and more or less evident across the wings; discal spot of fore wings black, distinct, margin with an ocher tinge; marginal line of black dashes; beneath as above, but less distinct.

Montana, Colorado.

T. inornata n. sp.—Expands 17 mm. Palpi short, slender, fuscous; front and thorax fuscous. Abdomen gray, slightly fuscous, somewhat ochreous at extremity; all wings somewhat silvery white; fore wings shaded with fuscous on basal half and along costa; about six heavier shadings along costa, the beginnings of otherwise obsolete bands; hind wings shaded with brown fuscous cloudings forming indistinct cross-bands; discal spots wanting; beneath whitish, both wings shaded with fuscous cloudings and the costa of fore wings narrowly black on basal third; discal spots obsolete.

Mitchell County, North Carolina, July 7th. From Mr. Laurent.

T. annulata n. sp.—Expands 22-24 mm. Palpi fuscous ochreous; thorax and abdomen dark fuscous; fore wings fuscous brown; all veins brokenly and finely lined with black, annulate, heavier on the inner side; outer space darker, enclosing lighter scalloped line, parallel with outer margin; hind wings light fuscous at base, darker towards outer margin, anal veins slightly lined with black; beneath dark fuscous, with brownish tinge; all wings darker outwardly; discal spots distinct.

Exact locality unknown, but probably from California.

T. flavigutta n. sp.—Expands 24 mm. Palpi short, blackish; front blackish; front of thorax blackish; patagiae and posterior part violet-ocher to violet. Abdomen with basal segment ocher, then blackish, at extremity becoming violet-ocher. Wings rather extended, fuscous, lines scarcely evident, except double outer line, which is quite clear, rounded beyond discal spot; beyond this at veins 3 and 4 is a large ochereous spot reaching to outer margin, and above this an oblique spot of same color running somewhat narrowly from about vein 5 to outer margin just below apex, both spots faintly violet shaded; the base of the wing has also a violet-ocher color, as have faintly the ends of the veins along outer margin; hind wings fuscous, darker outwardly; all discal spots black, distinct; beneath much as above, without ocher or violet color, more leaden; hind wings with two outer rows of black dots on veins.

Colorado. From Mr. Bruce.

T. coloradensis n. sp.—Expands 24-26 mm. Palpi and front dark fuscous; thorax fuscous anteriorly, gray posteriorly. Abdomen fuscous, tufts and last segment blackish; fore wings fuscous, strongly washed with ochreous brown, especially within submarginal space; a rather broad, heavy, dark, rounded line close to base, a broad line at discal spot, distinct at costa including and angulated at discal spot, lost before reaching inner margin, extra discal shadings beyond following the same course, the ocher-brown becoming somewhat reddish brown near marginal space, which is darkly shaded, broadest at apex and narrowing to a line at anal angle; marginal line black, broken at veins; hind wings fuscous gray, faintly shaded in darker scalloped lines, the outer margin somewhat rounded in beneath anterior angle; beneath more indistinct than above on fore wings, the ocher and brown nearly lost, the hind wings light gray with three quite distinct cross-lines, intra discal, extra discal and submarginal; margin of all wings blackish, separated by veins.

Colorado. From Mr. E. L. Graef.

T. sierræ n. sp.—Expands 24 mm. Palpi blackish fuscous; front dark fuscous gray; thorax dark fuscous, with a yellowish tinge; fore wings fuscous with scattered black scales, with ocher shading subcostally, apically and within outer line on middle of wing; basal line wavy, indeterminate, consisting apparently of several parallel lines, making together a faint band much darker at costa; costal space blackish fuscous, broken, darkest basally; outer line showing in a lighter broad line edged on both sides with blackish points and atoms, angulated inwardly, then outwardly below costa, then parallel with outer margin, the blackish edgings being much emphasized at costa making a blackish patch; marginal line black; fringe interrupted, blackish; apex blackish; hind wings fuscous with scattered black scales, more numerous outwardly, giving darker shading and showing shadowy lines; inner margin broken, blackish; marginal line black; discal spots distinct, black, those on fore wings especially so, and the scales somewhat enlarged and raised; beneath as above, more fuscous, lines fainter, without ocher shading.

Colorado. From Mr. Bruce. Near *T. coloradensis*, which it much resembles.

T. cretata n. sp.—Expands 22 mm. Palpi gray, short; front gray; collar black; thorax and abdomen ocher-gray. Wings broad, whitish, overlaid with fuscous, the lighter color showing in lines, and all somewhat washed with ochreous; the basal whitish line well out, wavy, rounded; two blackish wavy lines on median field, the inner passing through discal spot; an outer light line, evenly rounded from costa to vein 2, then bent to margin; the marginal space blackish, broadest towards apex; discal spots black; hind wings corresponding, but basal and median portions lighter; lines very indistinct, discal spots not strong; beneath as above, without ochreous tint, and the dark colors more lead like.

Colorado. From Mr. Bruce.

T. fumosa n. sp.—Expands 18-24 mm. Of a uniform even dark fuscous color, the cross-lines of the wings only faintly, if at all, showing. Wings broad, rounded; discal spots of fore wings round, large, prominent, black; four black spots on costa of fore wings, each one the beginning of a fine black cross-line, the two outer being subparallel and just beyond discal spot; a lighter submarginal line, indistinct, somewhat clearer in a spot at anal angle; hind-wings with faint median and submarginal lines: beneath color as above, darker in median and submarginal bands on all wings; very close in appearance to duller specimens of *T. absynthiata* L., but distinct in the long, almost tufted palpi.

South Abington, Mass., Brockport, N. Y.

T. maestosa n. sp.—Expands 24 mm. Palpi long, somewhat drooping, light gray; front gray, somewhat tufted, black below; thorax dark fuscous. Abdomen nearly black. Wings fuscous gray, overlaid with fuscous, the ground color showing in the cross-lines; lines many, more distinct than usual, the basal median and outer showing most plainly; the basal narrow, running out from costa to subcostal vein, then turning back at a right angle straight to inner margin just out from base; the median of the same shape, passing through discal spot and reaching inner margin one-half out; the outer with a deep rounded sinus from costa, rounding backward, then at a sharp angle turning parallel with outer margin to inner margin, wavy in its course; hind wings with a double wavy black line beyond middle, and another margined, all more distinct than usual; discal spots of fore wings large, distinct, black; beneath nearly uniform dark fuscous.

Colorado. From Mr. Bruce.

T. nimbicolor n. sp.—Expands 23 mm. Palpi of moderate length, heavily haired, blackish, with gray at end of longer scales; front blackish; antennæ dull fuscous; thorax and abdomen blackish gray, the abdomen interlined with black. Wings very uniform blackish fuscous, blackish cross-lines very faintly showing, the costa and outer margin of fore wings being somewhat darker than rest of wing; hind wings uniform, all wings with marginal black line evident; beneath very much as above.

Calgary, Canada. From Mr. Wolley-Dod.

T. nimbosea n. sp.—Expands 24-26 mm. Palpi short, not heavy, light fuscous to fuscous; thorax, abdomen and wings light fuscous, the fore wings and hind wings outwardly with shadings of dark fuscous; fore wings with fine blackish basal line, a fine intra discal line and a corresponding geminate line

enclosing slightly lighter color beyond, bending around discal spot, and somewhat angulated below costa, an outer corresponding geminate line subparallel, reaching inner margin just within angle; a submarginal waved line not very distinct; discal spots distinct, black; hind wings with indications of lines along inner margin, sometimes in part showing across wing.

Arizona, California, the latter taken in July.

T. longidens n. sp.—Expands 22–24 mm. An insect of the size and very much the appearance of *T. multistrigata*. The palpi, however, are long, reaching far beyond the head, and the fore wings have the middle black line running from costa out to discal spot, there turning at an abrupt angle backward and running in nearly a straight line back to inner margin just beyond base; the discal spots are prominent, black; the hind wings have an extra discal distinct median line, rather evenly rounded, and followed by another submarginal, and still another marginal: beneath the wings are more distinctly marked in dark bands than usual, the rounded intra discal, extra discal and marginal bands standing out clearly on all wings, with distinct black, rather large discal spots.

Colorado. From Mr. Bruce.

T. multistrigata n. sp.—Expands 24 mm. Palpi small, gray: front, thorax and abdomen light gray, the latter with a lateral black line, the segments interlined with blackish, except on dorsum; fore wings light cinereous, marked over with blackish scales; a faint geminate basal cross-line, another intra discal, a third extra discal with strong angle beyond discal spot; outer geminate line with a sharp angle inward at cell, then turned back at a sharp angle at vein 6, thence nearly straight to inner margin, outer submarginal fine whitish line following the same course, but with a sharp inter angle just before reaching inner margin; discal spots nearly or quite obsolete, showing clearly in a white bordering lunule; hind wings light cinereous, darker, with black scales outwardly and along inner margin with beginnings of two geminate cross-lines; discal spots obsolete; marginal lines of black dashes, almost or quite continuous in places; beneath reproducing the lines above more indistinctly.

Glenwood Springs, Colorado, August 18. From Mr. Barnes.

T. multiscripta n. sp.—Expands 34 mm. An insect very much in appearance like *T. multistrigata*, differing among other things as follows: The insect is much larger, and is as large as any American species; the palpi are considerably longer; the body is less sharply checkered with black and gray; the lines of the wings are generally more sharply distinct, the submarginal line being without the prominent inner dentation near anal angle; the fore wings are more pointed, and the hind wings less evenly rounded, in this species the anal angle being quite well marked, and the outer margin being slightly bent in before it.

Colorado. From Mr. Bruce and Dr. Barnes, the specimens of the latter taken in May.

T. stellata n. sp.—Expands 24 mm. Palpi, thorax and abdomen dark fuscous, the latter with dull reddish spots dorsally, one on each segment; fore wings reddish brown, basal space along costa to cell black, ending outwardly in a black angulate cross-line; a middle field of black covering discal spot broad at costa,

rapidly converging to behind cell, then continued narrowly almost brokenly to vein 1, then broadening to inner margin; on costa the shape to narrowest part is triangular, and on inner margin subtriangular: faintly lighter lines on each side the blackish space, a wavy submarginal lighter line; hind wings fuscous, lighter at middle and base, irregularly clouded outwardly and along inner margin; beneath as above, but more indistinct, the costa of fore wings being black from base to beyond middle field.

Colorado.

T. obscurior n. sp.—Expands 26–30 mm. Palpi, thorax and abdomen fuscous black; palpi short, slender; fore wings blackish fuscous or brownish, tinted with faint geminate lines; outer line more distinct, especially at costa, sometimes light across the wing: it turns at nearly a right angle outward at cell, then rounds opposite discal spot in nearly a straight line to inner margin; the submedian is black lined from base to middle: the submarginal line is very faint; hind wings with blackish marginal space and broken blackish inner margin; beneath nearly even blackish fuscous, with black spots along costa.

California, Colorado.

T. bivittata n. sp.—Expands 26 mm. Palpi ocher fuscous; thorax, clypeus and abdomen dark fuscous; fore wings rather dark fuscous, slightly ocher tinged, unicolorous or faintly mottled, being slightly darker on veins, the indications of obsolete cross-lines; discal spots distinct, black, round; a whitish longitudinal dash on both sides; two outer marginal lighter lines very faint, running parallel with outer margin continuing to costa just within apex; hind wings light fuscous at base, darker outwardly and along inner margin, a number of dark lines soon obsolete showing along inner margin; marginal lines in both wings black; beneath as above, less uniform, a dark outer line showing on fore wings rounded somewhat at costa; hind wings with faint outer cross-line: marginal lines black; discal spots distinct on all wings.

Mendocino, Cal., June.

T. unicolor n. sp.—Expands 26–28 mm. Palpi fuscous; head, thorax and abdomen fuscous, with a violet-red tinge; all wings of same color, evenly frosted; fore wings with a blackish basal line making a right angle at cell; an interdiscal line corresponding in color and direction, a little more distinct; a corresponding outer line with a deep outer sinus beyond discal spot, these two outer lines continued on hind wings; discal spots of all wings black, not very distinct; beneath light fuscous, discal spots and outer line showing more broadly than above.

Colorado and California.

T. cestata n. sp.—Expanse 28–30 mm. Palpi blackish or dark gray whitish at end; face black below, whitish above; thorax gray or whitish. Abdomen dark fuscous, intermixed with gray scales and ringed with lighter color; fore wings light gray, overlaid on all edges with fuscous black, sometimes with a brownish tinge: this color following the costa from base, becoming a large triangular spot at discal point and enlarging to another smaller triangular spot near apex; on outer margin it is obsolete below apex, then at middle becomes a large rounded spot, with another at anal angle, these sometimes continuously joined as

a marginal band; the dark color is broad along inner margin, especially centrally, almost reaching the costal triangle; discal spots black, linear; hind wings gray, overlaid outwardly with blackish, and along inner margin to base; beneath ground color as above, and with much the same dark markings, except along inner margin of fore wings.

California, very much like *T. nevadatus* Pack., differing principally in the color. It may be a variety of that species.

T. implorata n. sp. — Expands 26 mm. Palpi short, rather slender, fuscous; front light fuscous; thorax gray. Abdomen dark gray, ochreous at end; fore wings light gray or whitish, frosted, blackish in broken spots along costa, a patch near apex being largest, somewhat brownish along inner margin, a black basal cross-line, one geminate intra discal black line angulated outward on cell and submedian vein, an outer black line distinct at costa, marked on veins posteriorly; all veins lined with black on middle field, vein 2 heavier than the rest; discal spot long, reaching along outer margin of cell, made of longer, somewhat raised scales: marginal line heavy, black, somewhat broken; hind wings long, narrow, light gray, blackish on anal margin; discal spot black, brownish tinted at extreme edge; beneath faintly shadowing the surface above, the hind wings with outward dotted cross-line.

California.

16. **EUCYMATOGE** Hüb.

Verz. 325, 1818.

Type *togata* Hüb.

Hyperiirritis Hüb., Verz. 329, 1818, type *impurata* Hüb.

Orthonana Hüb., Verz. 331, 1818, type *vitalbata* Hüb.

Horisma Hüb., Verz. 331, 1818, type *tersata* Hüb.

Phibalapteryx Steph., Cat. 138, 1829, type *tersata* Hüb.

Palpi moderate, scaled, porrect; tongue developed; clypeus with small scale tuft; antennae filiform, ciliate in both sexes; thorax untufted. Abdomen with scale tuft dorsally on each segment; hind tibiae with all spurs present; fore wings often narrow, extended, 12 veined, two accessory cells; hind wings 8 veins, 3 and 4 separate, 6 and 7 separate or stemmed, 8 anastomosing with cell to beyond middle.

Species.—*E. tenuata* Hulst.

E. gelidata Moesch.

E. anticaria Wlk. (*strattonata* Pack.)

E. graefii Hulst, n. sp.

E. grandis Hulst, n. sp.

E. intestinata Guen.

E. vitalbata Hüb.

I add *E. vitalbata* to our list as I have lately received specimens from F. H. Wolley-Dod taken at Calgary, Canada.

E. graefii n. sp.—Expands 25–28 mm. Palpi rather long, gray or blackish gray; front strongly tufted, light gray or fuscous; thorax fuscous. Abdomen gray or fuscous; fore wings fuscous gray or gray, crossed by many wavy, or in most instances very indistinct and indeterminate lines; the most prominent in most cases are one close to base rounded dentate; a second intra discal with an angle at subcostal and at vein 1a, and a third extra discal straight or slightly concave from costa obliquely outward to between veins 5 and 6 there angled, and then waved dentate, parallel with outer margin across the wing; the outer space is more shaded than the middle and has a generally well marked, light, scalloped, submarginal line; discal spot large, distinct, blackish, oval; hind wings fuscous gray, faintly indicating wavy cross-lines; discal spot dark, indistinct; margins of all wings black, broken at ends of veins; beneath lighter than above, silky, with blackish along costa of fore wings, and the upper lines very faintly if at all showing.

Mt. Hood, Washington. From Mr. E. L. Graef.

E. grandis n. sp.—Expands 28 mm. Palpi rather long, fuscous ocher; front light fuscous, tufted; thorax fuscous, with an ocher tinge. Abdomen the same color, with the tufts blackish; fore wings base fuscous ocher, edged outwardly with a fine rounded black line; beyond this to outer line the wing is lighter, showing whitish at beginning, centrally within discal spot in a waved double cross-line, and also in a double line at end of middle space, these lighter lines separated by fine dark lines; outer line running obliquely outward to between 6 and 7, then turning at a right angle and following margin in quite even scallops; outer space darker, especially within apex, and towards costa between the outer line and a scalloped submarginal whitish line which runs parallel with outer margin; margin darkly shaded on either side of ends of veins; hind wings even, light fuscous gray, margin dark shaded on either side of veins; beneath even light silky fuscous, darker and more ochreous on outer space.

Washington.

17. VENUSIA Curt.

Type *cambrica* Curt.

Palpi rather short, somewhat recurved, scaled; tongue developed; clypeus scaled, smooth; antennæ of ♂ bipectinate, of ♀ filiform; thorax and abdomen untufted; hind tibiæ with all spurs present. Wings rounded, fore wings 12 veins, one accessory cell; hind wings 8 veins, 3 and 4 separate, 8 anastomosing with cell to beyond middle.

Species.—*V. cambrica* Curt.

V. duodecimlineata Pack.

V. comptaria Wlk. (*perlineata* Pack.)

V. inclinitaria Wlk.

18. **EUCHŒCA** Hüb.

Verz. 298, 1818.

Type *obliterata* Hüb.*Hydraelia* Hüb., Verz. 322, 1818. type *sylvata* Hüb.*Trichodezia* Warr., Zoo. Nov. ii. pt. 2, p. 119, 1895, type *albovittata* Guen.

Palpi short scaled, slender, porrect; tongue developed; front smooth; antennæ filiform, ciliate; thorax and abdomen untufted; hind tibiæ with two pairs of spurs; fore wings 12 veins, one accessory cell; hind wings 8 veins, 8 anastomosing with cell to beyond middle.

Mr. Warren says his genus *Trichodezia*, of which *albovittata* is type, "has a long tuft of dark hairs towards the inner margin of fore wing on underside." He does not say whether this is a sexual peculiarity or common to both sexes. I have, however, been unable to find the peculiarity in either sex after examining numerous specimens, and so place it as a synonym. The venation of the hind wings is, however, somewhat abnormal as 8 does not unite with the cell through the basal half of the cell's length.

Species.—*E. albovittata* Guen.

E. californiata Pack.

E. cretacea Pack.

E. lucata Guen.

E. albogilvaria Morr.

19. **ASTHENA** Hüb.Verz. 310, 1818 (*Epirrita* Hüb., Tentamen 1810).Type *candidata* Schif.*Oporinia* Hüb., Verz. 321, 1818, type *dilutata* Bork.*Minoa* Dup., Hist. Nat. Fr. viii. 545, 1829, type *murinata* Sc.*Oporabia* Steph., Ills. iii. 273, 1831, type *dilutata* Bork.

Palpi short, porrect; front smooth, flat; antennæ filiform in both sexes; thorax and abdomen untufted; fore tibiæ unarmed, hind tibiæ with all spurs; fore wings 12 veins, two accessory cells; hind wings 8 with cell to beyond middle.

As Mr. Meyrick remarks, there can be no doubt concerning the application of this generic name, as only one species was placed under it by Hübner. It corresponds with the Tentamen name *Epirrita*, whose type was *dilutata* Bork. As stated before I do not recognize the Tentamen names, but indicate where they apply if any please to make use of them.

Species. ~~f~~ *A. dilutata* Bork.

20. **CORYPHISTA** n. gen.Type *meadii* Pack.

Palpi porrect, rather long; clypeus with a conical tuft; antennæ slender, flattened, minutely ciliate. Abdomen of ♂ with lateral pencil of hair on penultimate segment; hind tibiæ with all spurs present; fore wings 12 veins, two accessory cells, 6 and 7 from a point; hind wings scalloped, with lobe along inner margin in ♂ near middle, with a ridge or brush of stout hairs on lower edge; hind wings with 8 veins, 3 and 4 separate, 6 and 7 stemmed, 8 with cell half its length.

Species.—*C. meadii* Pack.*C. badiata* Hy. Edw.

Close to *Calocalpe* Hüb., but differing in the terminal abdominal tuftings.

21. **CALOCALPE** Hüb.

Verz. 330, 1818.

Type *undulata* Linn.*Eucosmia* Steph., Ill. iii, 265, 1831, type *undulata* L.

Palpi moderate, scaled, porrect; tongue developed; clypeus with scale tuft; antennæ ciliate in both sexes; thorax and abdomen scaled, untufted; hind tibiæ with all spurs present, in ♂ very short; fore wings 12 veined, with two accessory cells; 3 and 4 separate; hind wings of ♂ with fold along inner margin beneath containing a hair tufting, 3 and 4 separate, 8 anastomosing with cell to beyond middle.

Species. ~~*C.*~~ *C. undulata* L.22. **CATOCLOTHIS** n. gen.*Cyclica* Grt., Can. Ent. xiv, 174, 1882.Type *frondaria* Grt.

Palpi long, porrect, or somewhat drooping; clypeus somewhat drooping; antennæ of ♂ bipectinate; thorax with a dorsal posterior tuft. Abdomen tufted at end; hind legs with all spurs present; fore wings 11 veins, two accessory cells, 6 long stemmed with 7, 8 and 9 arising from nearly the same point as 7, 10 wanting; hind wings 8 veins, 5 near 4, 6 and 7 stemmed, 8 with cell more than half its length; all wings extended.

Peculiar in having but 11 veins in the fore wings, and also in having in the hind wings vein 5 arising almost at a point with 4;

also in hind wings vein 8 is strongly divided at base forming an approach to the fovea sometimes seen in the Ennominae. The only species known is very considerably like *Selidosema* (*Boarmia*) in appearance. The genus is abundantly distinct from *Chesias*, being like it only in superficial appearance and the outward form of the wings; the antennae are bipectinate in the ♂, not dentate as Mr. Grote says. Mr. Grote's name *Cyclica* is preoccupied.

Species.—*C. frondaria* Grt.

23. **PHILEREME** Hüb.

Verz. 330, 1818.

Type *rhamnata* Schif.

Scotosia Steph., Ills. iii, 259, 1831, type *rhamnata* Schif.

Palpi moderate, scaled, porrect; tongue developed; clypeus scale tufted; antennae ciliate in both sexes; thorax sometimes tufted. Abdomen untufted, in ♂ with anal claspers large, exserted; hind tibiae with all spurs present; fore wings 12 veined, two accessory cells, 3 and 4 separate; hind wings 8 veined, 3 and 4 separate, 8 with cell to beyond middle.

In my opinion a doubtful genus, as the distinctive character, the exserted claspers of the ♂, seems to be comparative, and to some extent variable as based upon the circumstances of the death of the insect.

Species.—*P. californiata* Pack.

P. multivagata Hulst.

P. formosa Hulst, n. sp.

P. formosa n. sp.—Expands 35 mm. Palpi moderate fuscous; thorax fuscous. Abdomen ochreous, washed with fuscous, each segment lined with black posteriorly; fore wings light fuscous gray, banded and shaded with smoky fuscous; basal portion with two faint shadow lines, followed by a smoky brown, even broad shading, obsolete at costa, reaching from subcostal to inner margin; beyond this, edging the basal field a wavy black line; the median space is smoky fuscous, broader at costa than inner margin, outer line rounded between veins forming an extended dull angle between 4 and 5; beyond this the ground color and beyond this a submarginal waved dentate whitish line, edged both sides with smoky fuscous, somewhat brownish on inner side; an apical black spot, followed beneath by a second and larger one; marginal line black; hind wings even light ochreous fuscous, the veins slightly darkened; beneath on fore wings fuscous to outer field then lighter, except towards apex; hind wings with median black line; discal joints evident above and below, quite prominent on fore wings above.

Colorado. From Mr. Bruce.

Differs from the typical *Philereme* in the fact that the thorax is tufted posteriorly, and the vestiture is very decidedly hairy on the fore wings.

24. **PHYLACE** n. gen.

Type *luteolata* Hulst.

Palpi long, somewhat drooping or porrect, slender, rather heavily haired; clypeus with conical tuft; antennæ of ♂ bipectinate, of ♀ bidentate; thorax with posterior dorsal tuft. Abdomen of ♂ tufted at end; hind tibiæ with all spurs present; fore wings 12 veins, two accessory cells, 6 somewhat stemmed with 7; hind wings 8 veins, 3 and 4 separate, 6 and 7 separate, 8 joined with cell one-half its length.

Very close to *Eustroma* Hüb., from which it differs in the structure of the antennæ, and the absence of the hair pencil of the fore wings in ♂. It differs from *Neolexia* in the latter respect.

Species.—*P. luteolata* Hulst, n. sp.

P. luteolata n. sp.—Expands 32-40 mm. Palpi yellow ochreous, fuscous or blackish at extreme tip; antennæ, head, thorax, abdomen and wings yellow ochreous, the thorax a little mixed with fuscous scales and the abdomen yellowish laterally; fore wings with four yellowish brown lines arranged as in *Neolexia xyliua*, and of the same general course, but without the base, middle field or outer part being filled in with darker color; between these bands are fainter cross-lines, or faint broader shadings of narrow bands of same color with the more distinct cross-lines; hind wings more yellowish outwardly, with indications of lines within anal angle scarcely evident; beneath ochreous, the outer middle line evident on fore wings and a marginal subapical spot darker than the ground color; hind wings with two faint middle lines crossing the wing.

Two males, one female. Colorado and New Mexico. The insect is very much of the color and general appearance of *Eustroma diversilineatum*, with the lines in the shape of those of *E. populatum* or *E. prunatum*. It has probably been regarded as a form of *E. diversilineata*, but is very distinct as having bipectinate antennæ and wanting the hair pencil on the fore wings below in the male.

25. **EUSTROMA** Hüb.

Verz. 335, 1818.

Type *prunata* L.

Palpi rather long, porrect; front tufted; antennæ of ♂ filiform ciliate, or somewhat serrate; fore tibiæ unarmed, hind tibiæ with all spurs present, without hair pencil in ♂; fore wings with two accessory cells, 12 veins, in ♂ with strong pencil of hairs beneath at base of 1b; hind wings 8 veins, 8 with base to beyond middle.

Species. *E. diversilineatum* Hüb.

E. populatum L.

E. testatum L.

E. destinatum Moesch.

E. prunatum L.

E. nubilatum Pack.

E. atrocoloratum Grt.

E. explanatum Walk. (*cunigerata* Wlk.)

26. **NEOLEXIA** n. gen.

Type *xylina* Hulst.

Palpi long, porrect, or somewhat drooping, second segment long haired; tongue quite strong; clypeus with a conical tuft; antennæ of ♂ bipectinate; thorax with dorsal tuft of hairs posteriorly. Legs with all spurs present; fore wings 12 veined, with two accessory cells and with a strong pencil of hairs below near base of 1*b*; hind wings 8 veins, 4 and 5 separate, 6 and 7 separate, 8 joined with the cell one-half its length.

Species.—*N. xyлина* Hulst, n. sp.

N. speciosa Hulst, n. sp.

N. xyлина n. sp.—Expands 38–40 mm. Palpi and head ochreous fuscous; antennæ fuscous, with a slight ochreous tinge; thorax ochreous, the post-dorsal tuft yellowish. Abdomen buff on the sides, posteriorly somewhat reddish brown; fore wings grayish and brown, the latter forming a broad band filling the basal field about one-fourth of the length of wing along costa, with two or three rather faint, darker, subparallel cross-lines included, the outer margin unevenly sinuate, the most prominent bend, almost a dentation, being on cell; this is followed by a band of grayish considerably stained with brown, the outer edge being unevenly sinuous, the strongest bend being at the submedian outwardly, then follows a very broad brown band, broader at costa than on the inner margin with two included sinuate shade lines near middle, these showing with whitish along costa; the outer edge of the band is unevenly sinuate, rounded inwardly below costa, where it is edged outwardly with whitish, then rounded outwardly and strongly at the middle and again below, then running straight to costa, the scallops being divided by teeth at veins 2, 3 and 4, that at 4 being the least prominent; beyond the wing is grayish with brown tintings, with three black triangular spots, base inward beyond the white lunule beyond disc, and with a brownish subtriangular spot on outer edge below apex; marginal line black broken; hind wings fuscous gray, blackish lines showing on inner margin outwardly and fading into indistinct dentate lines across the wing; beneath ochreous gray, powdered with brownish on the fore wings, the outer part of the middle band and the outer subapical spot showing; on hind wings a faint submarginal line dentate emphasized at the points giving the appearance of a row of faint blackish spots.

New York, Washington, Montana, Alberta, Canada. Very much in appearance like *Eustroma prunata*, with which it may have been confounded, but easily distinguished by the bipectinate antennæ.

The specimen received from Calgary has the cross-bands blackish instead of brown, and the hind wings have a more distinct banding.

N. speciosa n. sp.—Expands 40 mm. Palpi dark fuscous; front blackish fuscous; front black; antennæ black above, fuscous ochreous below; thorax dark fuscous, the tufts bright orange-yellow. Abdomen gray, mixed with fuscous, with white dorsal line and with each segment black subdorsally and posteriorly; fore wings base black with some gray scales across middle, a broad white intra-discal band beyond, shaded with yellowish, except at edges, and with some mixing of blackish scales, a discal band beyond this black, rather narrower than the intra-discal, very slightly lightened at middle; outer space white shaded with yellow and olive to edge; a scalloped submarginal line, the lunules white without black within, with two heavy black triangular spots below costa near apex, and a large subapical black spot along edge lined above and inwardly with white; a broken submarginal black line; hind wings smoky gray with two outer scalloped lines both edged with whitish outwardly; beneath smoky to outer part of discal band on both wings, then a whitish band; on fore wings beyond this smoky, with whitish at apex, and on hind wings with a blackish cross-line, the outer space whitish.

One ♂, Calgary, Alberta, Canada. From Mr. F. H. Wolley-Dod.

This may be a variety of *N. xylinea* Hulst, but the color and shaping of the bands is different, and there is difference of position in the lines of the hind wings.

27. PLEMYRIA Hüb.

Verz. 327, 1818 (*Rheumaptera* Hüb. Tentamen 1810).

Type *bicolorata* Hüb.

Cosmorhoe Hüb., Verz. 326, 1818, type *galiata* Hüb.

Epirrhoe Hüb., Verz. 328, 1818, type *rivata* Hüb.

Enlypa Hüb., Verz., 328, 1818, type *hastata* L.

Melanippe Dup., Hist. Nat. viii. 277, 1829, type *hastata* L.

Palpi moderate, scaled; tongue developed; clypeus somewhat scale tufted; antennæ filiform ciliate in both sexes; thorax and abdomen smooth; hind tibiae with all spurs; fore wings 12 veins, one accessory cell; hind wings, 8 veins, 6 and 7 stemmed, 8 with cell to beyond middle.

This corresponds to the Tentamen genus *Rheumaptera*, the type of which was *hastata*. Mr. Meyrick calls this genus *Plemyria*, of which *bicolorata* Hüb. is the type. *Cosmorhoe* was named by Hübner with *galiata* Hüb. as type. *Galiata* and *bicolorata* are conge-

neric. *Cosmorhoe* has priority of page, though not of time. The name *Plenyria* must stand as the genus name, however, under the code.

Species.—*P. hastata* L.

P. tristata L.

P. sociata L.

P. delimitata Warr.

P. georgii Hulst, n. sp.

P. rubrosuffusata Pack.

P. obductata Moesch.

P. georgii n. sp.—Expands 28-31 mm. Palpi quite long, prominent, porrect, end member drooping, fuscous gray; clypeus and thorax dark gray. Abdomen mouse-gray to blackish gray; fore wings mouse or fuscous gray, with a faint violet tinge; basal line lighter, distinct, sinuous, edged within with a darkish band; a middle black line narrow, rounded to behind cell then pointed outwardly on veins, extending in general direction outwardly towards inner margin; an outer fine black line rounded outwardly to vein 3, then angulated inwardly on veins to inner margin, the lines on veins joining those of median line separating the median space into rounded dots, these sometimes entirely separated, the veins becoming lighter between the parted black line; the lines have a darker brownish or reddish band within the middle space forming a large rounded discal annulus, which is lighter in the middle, this enclosing the discal spot; outer space darker, again enclosing an evenly scalloped, distinct, whitish outer line; marginal line broken black; hind wings mouse-gray or ocher-gray, with a submarginal clouding forming an indistinct band; beneath gray fuscous; fore wings with faint line beyond discal spot and faint submarginal band; hind wings with black discal spot, and a fine, quite distinct line beyond marginal space, some darker.

California, Nevada, Washington, Vancouver Island.

28. **ZENOPHLEPS** n. gen.

Type *lignocolorata* Pack.

Palpi prominent, heavy, porrect; tongue developed; clypeus scaled with strongly developed scale tuft; antennæ bipectinate in ♂, filiform in ♀; thorax untufted. Abdomen somewhat tufted at end in ♂; hind tibiae with all spurs present. Wings broad, even; fore wings 12 veined, one accessory cell, 5 nearer 6 than 4, 6 and 7 stemmed, separate from 8 and 9; hind wings 8 veins, 8 with cell to beyond middle.

As Mr. Meyrick remarks, in speaking of *Cataclysm* Hüb., a corresponding European genus, the venation is very anomalous among the Hydrimenidæ, and is, so far as the relations of 6 and 7 with 8 and 9 of the fore wings go, the same as the distinctive venation of the Strophidiinæ. The rest of the venation is distinctively of the

present family, as is the whole aspect of the species. Mr. Meyrick explains these as anomalous forms in which the posterior wall of the second accessory cell has become obsolete; he therefore speaks of the insect as having two accessory cells in fore wings. *Zenophleps* differs from *Cataglyphis* Hüb. in having bipectinate antennæ in the ♂.

Species.—*Z. lignicolorata* Pack.

Z. obscurata Hulst, n. sp.

Z. obscurata n. sp.—Expanse 26 mm. Palpi ochreous brown, blackish towards end; head ochreous fuscous, with thorax and abdomen of same color; fore wings grayish, well mixed with blackish scales, and with many not very decided blackish cross-lines, and the whole washed with yellow ochreous, especially on the outer third; the lines are arranged in three bands, the first basal, the second median within the black discal spot, the third beyond the discal spot; they all are lighter between the limiting lines, are quite evenly rounded outwardly, pretty evenly dentate on both sides the middle one being the most even; the outer one has two or three little white spots outwardly at veins 2, 3 and 4; outer space arranged in two or three lighter and darker bands, sharply and evenly dentate; a line of black marginal spots; fringe concolorous with outer part of wing; hind wings corresponding very much to pattern of fore wings, but all basal markings lost, and middle band showing in a rounded, distinct, blackish line; beneath fuscous gray, the bands on both wings showing in deeper color, rather solid and quite decidedly manifest in a broad marginal band on both wings.

One male, Siskiyou County, California.

29. **ENCHORIA** n. gen.

Type *osculata* Hulst.

Palpi short, rough, hairy; front rough scaled, scarcely tufted; tongue developed; antennæ of ♂ flattened, dentate, finely ciliate below; thorax with a double anterior tuft, and also a low posterior tuft. Abdomen slightly tufted at end; hind tibiae with two pairs of spurs; fore wings two accessory cells, 12 veins; hind wings 8 veins, 6 and 7 stemmed, 8 with cell to beyond middle.

Differs from *Gypsochroa* Hüb. in that the antennæ are evenly ciliate, not fascicled with hairs.

Species.—*E. osculata* Hulst, n. sp.

E. osculata n. sp.—Expanse 24 mm. Palpi, front and thorax fuscous, with black scales intermixed, the whole vestiture being squamose and diffuse. Abdomen diffuse, fuscous, the first segment being more blackish and the fourth blackish dorsally; fore wings fuscous, the whole surface covered with more or less faint, dentate, or wavy lines, parallel with the rounded outer margin; these show most decidedly by a faint basal cross-band, somewhat darker than the ground color, edged inwardly and outwardly by a more grayish color, the dentations of the outer lines marked with black on veins; discal spots prominent black with whitish

flecks beyond; outer lines most prominent, geminate, gray, sinused outwardly between veins 5 and 2, dentate wavy all their length; a submarginal, faint, wavy gray line; fringes color of wings with lighter intermissions; hind wings rather satiny white, slightly stained with fuscous and with black atoms basally and along inner margin; beneath dull white on all wings, fuscous stained along costa, speckled with black scales basally on fore wings and all over hind wings with large blackish spot at apex of fore wings divided by whitish line, all wings with black discal spots.

Southern California.

30. **PERCNOPTILOTA** n. gen.

Type *fluviata* Hüb.

Plemyrie Hüb., Verz. 334, 1818, type *fluviata* Hüb.

Palpi rather long, porrect; tongue developed; front with conical tuft of scales; antennæ of ♂ filiform, with fascicles of hairs on each segment; thorax without posterior tuft. Abdomen tufted at end; hind tibiæ with two pairs of spurs; fore wings 12 veined, two accessory cells; hind wings 8 veins, 6 and 7 stemmed, 8 with cell to beyond middle.

Plemyrie Hüb., applied to this species, is preoccupied by *Plemyria* Hüb., the names being the same, one partially, the other entirely latinized.

Species. ~~f~~ *P. fluviata* Hüb.

31. **MESOLEUCA** Hüb.

Verz. 326, 1818.

Type *albicillata* Linn.

Glaucopteryx Hüb., Verz. 332, 1818, type *caesiata* Lang.

Melanthia Dup., Hist. Nat. viii, 252, 1829, type *procellata* Fab.

Camptogramma Steph., Ill. iii, 263, 1831, type *bilineata* L.

Palpi moderate; front with tuft of scales; tongue developed; antennæ of ♂ filiform ciliate; thorax with or without posterior tuft. Abdomen sometimes tufted at end; hind tibiæ with all spurs, fore wings with two accessory cells, 12 veins; hind wings 8 veins, 6 and 7 stemmed, 8 with cell to beyond middle.

Species:—

M. ruficiliata Guen.

M. gratulata Walk. (brunneicil-

M. caesiata Bork. [iata Pack.)

M. lacustrata Guen.

M. brunneimaculata Bates.

M. truncata Hüb.

M. siluceata var. *deflavata* Staud.

M. albolineata Pack.

M. suspectata Moesch.

M. hersiliata Guen.

M. ethela Hulst, n. sp.

M. vasaliata Guen.

M. ethela n. sp.—Expands 30 mm. Palpi and head fuscous ochreous; antennæ fuscous; thorax fuscous ochreous. Abdomen fuscous gray; fore wings cream color from base one-third out, with a shading of blackish scales along costa at base, terminated outwardly by a rounded dentate line; beyond, a broad dark gray band with veins all somewhat darker lined, this band scalloped outwardly, the scallop being most prominent at vein 4, and the dentations marked by the veins; beyond this band a cream colored line broadening towards costa, followed by a broad dark gray submarginal band, which is somewhat reddish next to the cream colored line; margin blackish; hind wings whitish, a little fuscous tinted outwardly, with line of blackish marginal spots along outer border; beneath light cream fuscous, with darker outer shadings; hind wings whitish fuscous.

One ♂ Sierra Nevada, California.

32. **HYDRIOMENA** Hüb.

Verz. 322, 1818.

Type *trifasciata* Bork.

Euphyia Hüb., Verz. 326, 1818, type *picata* Hüb.

? *Perizoma* Hüb., Verz. 331, 1818, type *adæquata* Bork.

? *Entephria* Hüb., Verz. 331, 1818, type *flavicinctata* Hüb.

Chloroclysta Hüb., Verz. 332, 1818, type *miata* L.

Dysstroma Hüb., Verz. 333, 1818, type *truncata* Hufn.

Harpalyce Steph., Cat. ii, 131, 1829, type *fulvata* Forst.

Ypsipetes Steph., Cat. ii, 133, 1829, type *trifasciata* Bork.

Emmelesia Steph., Cat. ii, 147, 1829, type *decolorata* Hüb.

Mæsia Steph., Ill. iii, 150, 1831, type *decolorata* Hüb.

Polyphrasia Steph., Ill. iii, 227, 1831, type *immanata* Haw.

Enthalia Steph., Ill. iii, 252, 1831, type *miata* L.

Thera Steph., Ill. iii, 271, 1831, type *simulata* Hüb.

Phasyle Dup., Cat. Meth. 254, 1844, type *malvata* Ramb.

Ceratodalia Pack., Geom. Moths. 322, 1876, type *gueneata* Pack.

Palpi moderate or long; tongue of ♂ developed; front with or without scale tuft; antennæ flattened, often naked, shortly and finely ciliate below; thorax with posterior tuft more or less developed. Abdomen often tufted at end; hind tibiæ with all spurs; fore wings with two accessory cells, 12 veins; hind wings 8 veins, 6 and 7 stemmed, 8 with cell to beyond middle.

This genus, with what I have placed under *Mesoleuca*, *Ctenocalpe*, *Triphosa*, *Euchoria* and *Gypsochroa*, are all grouped by Mr. Meyrick under *Hydriomena*. He recognises there are very considerable differences in structure which would easily warrant generic separation, but thinks the species so intergrade in every structural point that it is impossible to draw a distinct line anywhere. I agree with him entirely, yet think it wiser to draw an artificial line than to lump very widely variant species under one genus, which thus becomes very large and unwieldy, as well as discordant. In very few

species is there any doubt as to the group in which they naturally fall, and I have in a sort of a way made *Hydriomena* the refuge of species whose ♂ I have not seen, and whose exact reference cannot therefore be given. The species under it are yet in respect to palpi, antennæ, thoracic tuftings, and the position of vein 6 of fore wings very variable, but I hesitate to make any further divisions, as the bulk of species lie midway between the extremes. *Trifasciata*, the type of *Hydriomena*, has very long palpi, and is in some other respects rather an extreme species.

Species:—

H. sordidata Fab.

H. trifasciata Bork.

H. californiata Pack.

H. speciosata Pack.

H. reflata Grt.

H. similaris Hulst, n. sp.

H. contracta Pack.

H. sparsimacula Hulst, n. sp.

H. herbicolata Hulst, n. sp.

H. basaliata Walk.

H. latirupta Walk.

H. multiflerata Walk.

H. curvilinea Hulst, n. sp.

H. immediata Grt.

H. costiguttata Hulst, n. sp.

H. gueneata Pack.

H. mirabilata Grt.

H. unangulata Haw.

H. neomericana Hulst, n. sp.

H. australata Hulst.

H. custodiata Guen.

H. ablata Hulst, n. sp.

H. similaris n. sp.—Expands 28–31 mm. Palpi blackish gray; front dark gray; thorax same color with more of gray, with a posterior tufting blackish at end. Abdomen fuscous; fore wings base gray, mixed with scattered black scales, limited by a black line somewhat oblique, angled at cell, then a broad band of blackish, lightened with gray scales which run in the form of two narrow broad cross-lines; this band reaches only to the discal point, the outer limiting black line passing through the discal point rounding out to it from costa thence inwardly to below cell, then outwardly to inner margin; then comes a comparatively narrow grayish band, not distinctly limited outwardly, having near its outer edge the outer black cross-line which is wavy dentate, with its two most prominent and equal protuberances between veins 2 and 3 and 3 and 4; outer space dark, much lightened behind middle, and with two or three subapical black dashes; hind wings light fuscous; all margins blackish; beneath, color of hind wings above, on fore wings darker along costa and outwardly towards apex.

Colorado. From Mr. Graef.

H. ablata n. sp.—Expands 28 mm. Palpi fuscous gray; thorax and front fuscous. Abdomen fuscous, each segment with a black anterior line; fore wings light gray, with blackish lines and shadings; base dark fuscous, mixed with gray; basal line rounded outwardly at cell, and angled inwardly at 1a; beyond base an intra-discal gray band sprinkled with black scales, then a blackish discal band narrower than usual, scalloped on both sides, the teeth on the veins and towards

each other reaching so far in towards inner margin as to almost form ringlets, then an extra-discal gray band much clouded and striated with blackish scales, with a deep cloud along costa, with a black submarginal line, scalloped, outwardly dentate; marginal space blackish below apex; hind wings fuscous, with a faint middle lighter cross-line; beneath light fuscous, faintly revealing the markings above.

Arizona.

H. sparsimacula n. sp.—Expands 28 mm. Palpi light cinereous, black at end; front and thorax gray. Abdomen fuscous dorsally, much lighter on sides and below; fore wings light glaucous gray, washed with fuscous, with dark markings along costa showing the beginning of basal, discal, extra-discal and outer cross-lines, these discernible across the wing only by the lighter edging cross-lines and a few black scales; a black spot at middle of inner margin and another at anal angle; also one or two small black spots at apex; hind wings dull whitish, with two faint, even rounded, broad cross-lines, and a faint submarginal line; beneath even, lighter, very faintly showing markings above.

California; near some variations of *H. californiata* Pack., especially those of the *glauca* form.

H. neo-mexicana n. sp.—Expands 38-42 mm. Palpi fuscous above, blackish on sides and below; under part of head whitish; face fuscous black; thorax dark fuscous to grayish black. Abdomen dark fuscous, ringed with lighter fuscous, a blackish spot dorsally on each segment. Wings varying from light to dark fuscous, in fresh specimens darker, and then with a grayish olive shading; the whole surface of the fore wings is covered with scalloped cross-lines of varying intensity, the rounded part outward and generally subparallel, the lines being of a lighter color, the interspaces darker; at the base the darker color is emphasized by blackish forming a darker basal space, then a broad, generally lighter space to a broad central darker band, the inner line of this heavily shaded with blackish outwardly, the outer line with blackish inwardly, the inner dentate scalloped, the outer more irregular than usual with two strongly projecting outer scallops on veins 3 and 4; a submarginal outer line whitish, serrate on both sides; hind wings rather even fuscous, with faint indications of scalloped lines outwardly, especially near inner angle; beneath both wings light fuscous with a quite blackish undulating hair line beyond middle, and a broad, even, submarginal, blackish band; marginal lighter, fringe checkered with black at end of veins.

Described from a number of specimens in collection of Neumoegen and myself. Mr. Neumoegen's specimens are without locality, though I think they were said to be from Florida. My own specimens are from New Mexico (Cockerell), Colorado (Gillette) and Florida.

H. herbicolata n. sp.—Expands 18-20 mm. Palpi short, rather coarsely haired, blackish or black and ocher gray mixed; clypeus rather coarsely long haired, somewhat tufted; thorax rather squamose, black and gray intermixed. Abdomen fuscous ocher and black intermixed, the basal segment darker than the

rest; fore wings light fuscous gray, basal space blackish followed by an indeterminate broad cross-line somewhat angulated, which is followed by an indistinct dark band often showing only on the outer edges, this band being wavy sinuous and of the same width across the wing, and on its outer side almost touching the black discal spot; an outer sinuous whitish line, often clear white on costal half, angulated outward at vein 6, then an irregular inner sinus running outward to an angle at vein 4, this angle almost reaching the edge of wing, thence the line is wavy angulate, subparallel with edge of wing to inner margin; this line is edged within with a broad dark band which generally is evident only on lines limiting edge and is sometimes faint and indeterminate, sometimes with black dashes on veins 2, 3 and 4; outer space clouded below apex and a marginal line of black dashes hardly broken; hind wings light gray, darker towards base with black discal spot; beneath lighter than above, the outer lines showing, the white line much broader with whitish apical spot; hind wings color as above with two fine cross-lines, the inner straight across the wings, the outer rounded, scalloped.

Havilah, Cal., two males, two females. From Hy. Edwards, No. 7641.

There is much difference in the two sexes, the males being much more distinctly marked and lined, and especially with the outer white line.

H. curvilinea n. sp.—Expands 28 mm. Palpi short, somewhat long scaled, black and gray intermixed; clypeus and thorax gray. Abdomen ochreous; fore wings dull clay white, a blackish even basal cross-band scarcely curved, another corresponding band on middle field evenly curved across wing, edged within by a faint light tinge; outer field with a band distinct at costa, broken and indeterminate across wings, showing mostly as dark dashes on veins; outer space darker, more broad apically, showing an included dentate line parallel with outer margin; marginal line black; hind wings light clay fuscous with faint double median cross-line; beneath much as above, but much fainter.

Vancouver Island, British Columbia.

H. costiguttata n. sp.—Expands 25 mm. Palpi blackish gray; front gray, black below; thorax light gray on extreme front, collar and posteriorly, with a black band across between anterior half of base of fore wings. Abdomen white, stained somewhat on anterior part of segments with fuscous. Wings white, somewhat stained with fuscous; fore wings with two subtriangular black spots along costa, followed in each case by fine geminate wavy black lines limiting the middle field, the course being much as in *X. abrasaria* H.-Sch., the veins on the course of these lines somewhat marked with black dashes; outer field clouded, faintly showing submarginal lighter scalloped line; marginal line black, broken, two spots between each of the veins; hind wings with faint median line, marginal line as on fore wings; beneath slightly darker, costal spots indistinct, lines indistinct, almost obsolete.

California, from Hy. Edwards. In appearance very much like *Thumnonoma subcessaria* Walk.

33. **TRIPHOSA** Steph.

Cat. 44, 1829.

Type *dubitata* L.

Palpi rather long, stout, long scaled at base, subascending; tongue developed; front with scale tuft; antennæ of ♂ slightly flattened, finely ciliate; thorax tufted posteriorly. Abdomen tufted at end; hind tibiæ with two pairs of spurs; fore wings two accessory cells, 12 veins; hind wings 8 veins, 6 and 7 stemmed, 8 with cell to beyond middle, outer margin of wings scalloped.

Plerocymia Hüb., Verz. 330, 1818, has *dubitata* catalogued under it, but the first and more prominent species, *cervinata* has bipectinate antennæ, and taking that as type, the genus becomes a synonym of *Xanthorhæ* Hüb., Verz. 327, 1818.

Species.—*T. dubitata* Linn.*T. progressata* Walk. (*indubitata* Grt.)34. **CÆNOCALPE** Hüb.

Verz. 330. 1818.

Corythea Dup., Cat. Meth. 257, 1844, type *juniperata* L.*Stannodes* Guen., Phal. ii, 515, 1857, type *pauperaria* Evers.

Palpi moderate, or quite long; tongue developed; front smooth, sometimes flat, sometimes rounded and protuberant; antennæ of ♂ filiform, flattened, finely ciliate beneath; thorax and abdomen untufted; fore tibiæ unarmed; hind tibiæ with all spurs; fore wings 12 veins, two accessory cells; hind wings 8 with cell to beyond middle.

A genus as here limited with considerable variation in structure. The species agree, however, in the flattened antennæ of the ♂.

Species:—

<i>C. aurata</i> Grt.	<i>C. gibbocostata</i> Walk.
<i>C. magnoliata</i> Guen.	<i>C. annellata</i> Hulst.
<i>C. oxygramma</i> Hulst, n. sp.	<i>C. morrisata</i> Hulst.
<i>C. carneata</i> Pack.	<i>C. tessellata</i> Pack.
<i>C. alaskæ</i> Hulst, n. sp.	<i>C. fervifactoria</i> Grt.
<i>C. parinotata</i> Zell.	<i>C. formosata</i> Streck.
<i>C. polygrammata</i> Hulst, n. sp.	<i>C. seifertii</i> Neum.

C. alaskæ n. sp.—Expands 28 mm. Palpi blackish and ochreous, slender, porrect, strongly scaled; clypeus tufted; antennæ fuscous ochreous, flattened, scarcely ciliate beneath; thorax ochreous. Abdomen ochreous, interlined with fuscous ochreous on each segment; fore wings ochreous brown, darker on basal field and medially, the latter forming a distinct band quite even and of even width eu-

closing the distinct discal spot at about its middle: outer space also darker, edged within with a sinuous dark line followed by a line of ground color, and the band broken by the lighter veins which are of the ground color of the wings: marginal line brown; hind wings light ochreous, becoming more pronounced ochreous outwardly: beneath all wings of an even smoky ochreous color, the forewings showing a shade darker outwardly, and within apex along costa.

Alaska. Two specimens from Prof. Riley, neither in good condition.

C. polygrammata n. sp.—Expands 18–22 mm. Palpi gray or blackish gray, extended, heavy, porrect or drooping; clypeus tufted, gray or blackish gray; thorax slightly tufted posteriorly, gray or blackish gray. Abdomen ringed, varying from light to dark gray, and also sometimes stained with ocher; forewings light gray to gray crossed by many nearly parallel cross-lines, these not so heavy generally on basal space, and on outer space, giving in most cases the appearance of a broad central band running evenly across the wing, the discal portion narrowly being a shade lighter, and the outer and inner lines here being less parallel; the outer space is sometimes narrowly lighter outside middle band, often broadly so, the whole space being of the same color, and this and basal space often also tinted with ocher yellow: margin somewhat darker, with a narrow, even, dentate, whitish line parallel with outer margin.

Colorado, from Mr. Bruce; California, from Dr. Riley; Ariz.

C. oxygramma n. sp.—Expands 34 mm. Palpi and face fuscous gray, the palpi short and scaly: thorax light gray, patagiae whitish. Abdomen ringed with gray and whitish, ocher tinted towards end; forewings white, somewhat dull, with blackish cross-lines, the first basal bent even, extreme base blackish, then a narrow band within discal spot bent outward at cell, then wavy to before vein 1, there bent at a right angle towards base following the line, then again bent at a right angle to inner margin, this darker on margins and the same width across the wing; another band of like width and color beyond discal spot sinuous, with three bends across the wing in the general direction of outer margin merging with previous band at middle of wing and then separating to inner margin, the two bands thus enclosing a long costal space and a rounded triangular space at inner margin; another band incomplete, but well marked near apex and again at vein 5, almost obsolete otherwise; marginal line of black dots, discal spot black, the outer cell and veins tinged with yellow; hind wings light gray, with trace of median and marginal cross-lines; beneath as above, but less distinct, the two middle bands scarcely joining.

Havilah, Cal. From Henry Edwards.

35. **MELANOPTILON** H.-Sch.

Auseu, Schme, 1855.

Type *bifenestratum* H.-Sch.

Emplocia Guen., *Phal.* ii, 531, 1857, type *hesperidaria* Guen.

Palpi short, porrect; tongue developed; front short scaled, broad, somewhat rounded; antennae flattened, even, or subdentate in ♂, flattened, filiform in ♀. Thorax and abdomen untufted, very closely

scaled; fore tibiae unarmed, hind tibiae with all spurs. Wings very closely short scaled; fore wings very rounded at apex, 12 veins, two accessory cells, 10 and 11 from cell; hind wings 8 veins, 3 and 4 widely separate, 5 nearer 4 than 6, 6 and 7 stemmed, 8 with cell to beyond middle.

The genus is scarcely warranted, as it is not sharply distinct structurally from *Cenocalpe*, but it has a very different color aspect, has rounded fore wings, and the vestiture of body and wings is very short and close.

Species.—*M. cephisarium* Grt.

M. cephisarium Grt. may be *Melanchoria inconstans* Hüb.

36. **MARMOPTERYX** Pack.

Geom. Moths, 259, 1876.

Type *marmorata* Pack.

Marmaropteryx Gump. Nova Act. Halle, 49, 332, 1887.

Palpi short, rather heavy; tongue developed; clypeus very prominent, rounded, swollen, scaled, subcircular; antennæ of ♂ flattened, the segments even, of ♀ filiform; thorax and abdomen untufted; fore legs with tibiae spined at end; hind legs with two pairs of spurs; fore wings 12 veined, two accessory cells, 10 and 11 from cell, 3 and 4 from a point; hind wings 8 veins, 3 and 4 separate, 6 and 7 short stemmed, 8 anastomosing with cell to beyond middle.

The species of this genus and other species formerly grouped under *Marmopteryx* beyond question belong to the Hydriomenidæ. They have no affinities whatever, so far as I can see, with the Ennomidæ, or the old subfamily Macariidæ, where they were formerly placed.

Species.—*M. marmorata* Pack.

M. odontata Hulst, n. sp.

M. odontata n. sp.—Expands 38-44 mm. Near *M. marmorata* Pack., of which it may be the Colorado form, though very different in appearance. Palpi reddish ocher; front less reddish, summit of head ocher; collar and anterior part of patagiæ reddish ocher, the rest of the thorax light ocher, as is also the abdomen. Wings light ocher, more reddish along costa and on outer field, and decidedly so on either side costally of the outer line. The color of costa broken by two squares of lighter color; outer line distinct towards costa, broad, whitish, rounded at vein 5, fading out towards inner margin; hind wings evenly colored, the band below faintly showing through; fringes of fore wings checkered with white, of hind wings uniform white; beneath as above in markings, the outer field lighter, the rest of the wing darker than above; outer field white at apex, smoky posteriorly, reddish on both sides of outer line at costa; hind wings white.

brown striations forming an indistinct band on outer margin, a similar band beginning at anal angle and reaching one-half across wing; at the middle another even band, red, forming an angle at vein 6; base somewhat striated with brown. Legs darker than thorax.

Colorado. The general markings are like *marmorata* Pack. above, but differ very decidedly below.

37. **GYPSOCHROA** Hüb.

Verz. 336, 1818.

Type *albulata* Schif.

Cidaria Treits., Sch. Eu. vi, 2, 242, 1828, type *designata* Rott.

Z nodonta Sodof., Bull. Soc. Mosc. p. 126, 1837, type *designata* Rott.

Palpi moderate, or quite long, porrect; front with tuft of scales; tongue developed; antennæ dentate, with fascicles of hairs on each segment; thorax with low posterior tuft. Abdomen tufted at end; hind tibiæ with all spurs; fore wings 12 veins, two accessory cells; hind wings 8 veins, 6 and 7 stemmed, 8 with cell to beyond middle.

Species. ~~/~~ *G. designata* Bork.

G. hæsitata Guen. (*albosignata* Pack).

38. **EURHINOSEA** Pack.

Proc. Bost. Soc. Nat. Hist. xvi, 35, 1874.

Type *flavata* Pack.

Palpi long, somewhat drooping at end; tongue developed; clypeus slightly or not at all tufted; antennæ of ♂ dentate and strongly pubescent; ♀ ciliate; thorax and abdomen untufted; hind tibiæ with two pairs of spurs; fore wings 12 veined, one accessory cell, 3 and 4 separate, 5 nearer 4 than 6, 10 on 11, 11 from cell, 12 free; hind wings 3 and 4 separate, 5 nearer 4 than 6, 6 and 7 stemmed, 8 anastomosing with cell to beyond middle.

Species.—*E. flavata* Pack.

E. leoninata Pack.

E. mancipata Guen.

39. **PSYCHOPHORA** Curt.

Type *sabinii* Curt.

Palpi porrect, rough haired, moderate; tongue developed; clypeus very broad, flattish, rough scaled; antennæ bipectinate in ♂, filiform pubescent in ♀; thorax rough hairy. Abdomen rough hairy, untufted. Wings vestiture hairy, fore wings 12 veined, two accessory cells, 3 and 4 close at base, 10 and 11 from cell, 12 free;

hind wings 8 veined, 3 and 4 close together, 5 at the middle of cell, 6 and 7 stemmed, 8 anastomosing with cell to beyond middle; hind legs with two pairs of spurs.

I have a specimen of *P. phocata* sent me by Mr. Moeschler, and therefore typical, and I can see no difference between it and *P. sabinii* Curt., of which I saw the type in the British Museum.

Species.—*P. sabinii* Curt. (*phocata* Moesch.)

40. **TRICHOCHLAMYS** n. gen.

Type *polata* Hüb.

Palpi moderate, porrect, long haired; tongue developed; front rough with projecting hairs; antennæ flattened, even, finely ciliate, or nearly naked in ♂, filiform ciliate in ♀; thorax loosely rough hairy scaled or hairy. Abdomen rough scaled; hind tibiæ with all spurs; fore wings 12 veins, two accessory cells; hind wings 8 veins, 8 with cell to beyond middle.

Mr. Meyrick catalogues *polata* under *Dasyuris* Guen., which it closely approaches. But *Dasyuris* has the antennæ of ♂ dentate, which *polata* has not. I therefore propose the above as a designation of the genus.

Species.—*T. polata* Hüb.

T. lacteata Pack.

41. **ERSEPHILA** n. gen.

Type *grandipennis* Hulst.

Palpi long, subascending, end member horizontal; front smooth, rounded, prominent; antennæ shortly bipectinate, fasciculate in ♂, filiform in ♀; thorax with posterior tuft. Abdomen of ♂ with anal tuft; fore tibiæ unarmed, hind tibiæ with all spurs; fore wings 12 veins, two accessory cells; hind wings extended, broad, 8 veins, 5 near 4, 6 and 7 stemmed, 8 with cell to beyond middle.

Near *Xanthorhœ*, but with long palpi. Nearer *Hydriomena*, but the antennæ have short pectinations.

Species.—*E. grandipennis* Hulst, n. sp.

E. grandipennis n. sp.—Expands 42–52 mm. Palpi, head, thorax and abdomen fuscous gray, the thorax more mixed with black scales; antennæ dark fuscous; fore wings gray, somewhat washed with fuscous, and marked with various black cross-lines; the first basal broken, the next close to the first, rounded, broad near middle, the next one-third out, and rather an intermitted band showing in a broad blackish spot subcostally and next to inner margin; the next line is about the middle, narrow, quite distinct, rounded outwardly at submedian,

dentate outward on vein 2, with a deep sinus following, then rounding out to inner margin; another line subparallel, but not so irregular, beyond this: finally one beginning at a blackish spot on costa, strongly dentate on veins to middle, then faint and quite straight to within posterior angle: hind wings fuscous gray, veins a little darker, a faint lighter band beyond middle, the wings becoming dark fuscous outwardly; marginal line on fore wings black, broken, the fringes checkered; on hind wing marginal band present, continuous, fringes interlined; beneath dark cinereous, the markings above reproduced, but less definitely.

Colorado, from Mr. Bruce, also from California and Washington.

42. **XANTHORHÖE** Hüb.

Verz. 327, 1818 (*Petrophora* Hüb. Tentamen 1810).

Type *montanata* Bork.

Calostygia Hüb., Verz. 328, 1818, type *turbata* Hüb.

Melanydris Hüb., Verz. 329, 1818, type *incursata* Hüb.

Plerocymia Hüb., Verz. 330, 1818, type *cervinata* Schiff.

Anæba Hüb., Verz. 333, 1818, type *viridaria* Fab.

Ochyria Hüb., Verz. 334, 1818, type *quadrifasciaria* Clerck.

Onychia Hüb., Verz. 334, 1818, type *peribolata* Harv.

Scotopteryx Hüb., Verz. 338, 1818, type *coarctata* Hüb.

Ortholitha Hüb., Verz. 338, 1818, type *plumbaria* Fab.

Mesotype Hüb., Verz. 338, 1818, type *parallelaria* Hüb.

Eubolia Dup., Hist. Nat. viii, 162, 1829, type *limitata* Scop.

Larentia Dup., Hist. Nat. viii, 358, 1829, type *cervinata* Schiff.

Zerynthia Curt., Brit. Ent. 296, 1830, type *didymata* L.

Cymazonita Sodof., Bull. Imp. Soc. Mosc. 126, 1837, type *montanata* Bork.

Eusebia Dup., Cat. Meth. 249, 1844, type *bipunctaria* Schiff.

Coremia Guen., Phal. ii, 408, 1857, type *munitata* Hüb.

Palpi moderate, porrect; tongue developed; clypeus smooth, or slightly tufted; antennæ of ♂ bipectinate, of ♀ filiform; thorax and abdomen untufted; fore tibiæ unarmed; hind tibiæ with all spurs; fore wings 12 veins, two accessory cells, 6 shortly stemmed with 7 or separate; hind wings 8 veins, 8 with cell to beyond middle

Species:—

X. volucer Hulst, n. sp.

X. incurcata Hüb.

X. abrasaria H.-Sch. [Gn.]

X. multilineata Pack. (implicata)

X. illocata Hulst, n. sp.

X. borealis Hulst, n. sp.

X. nemorella Hulst, n. sp.

X. algidata Moesch.

X. munitata Hüb.

X. ferrugata Hüb.

X. unidentaria Haw.

X. montanata Haw.

X. convallaria Guen.

X. defensaria Guen.

X. fluctuata L.

X. borealis n. sp.—Expands 26 mm. Antennæ blackish; head fuscous brown, reddish at summit; thorax and abdomen dark fuscous. Wings dull fus-

cous ochreous; base dark brown, and a central broad band of the same color. The central band evenly rounded within, and the basal portion rounded without, the ground color between having its sides subparallel and nearly as wide at costa as at inner margin; outer edge of central band somewhat sinuous wavy, the band itself being nearly as broad at inner margin as at costa, an outer scalloped line brown, the teeth inward; faint indications of submarginal wavy lines; hind wings same color as fore wings with the wing to middle considerably darker; faint indications of outer wavy lines; discal spots black, distinct on all wings, somewhat elongate on fore wings; underneath fuscous, the inner half of all wings darker: discal spots as above.

Alaska.

X. nemorella n. sp.—Expands 31-33 mm. Head, thorax and abdomen dark fuscous ochreous. Wings smoky ochreous, with a band of chocolate-brown on fore wings near middle. This band is evenly rounded within, sinuous without, three to four times broader at costa than at inner margin: faint indications of submarginal wavy shades; hind wings without band, but with faint wavy shadings; discal spots wanting on hind wings, and scarcely or not at all evident on fore wings; veins on fore wings brokenly lined with black; beneath as above, with a strong reddish shading, the central band faintly showing on fore wings, and a faint dentated central line on hind wings.

California; Alaska; Aleutian Islands. Very much like the preceding species, but with fore wings more pointed and subfalcate, larger, and with a differently shaped central band.

X. illocata n. sp.—Expands 30-32 mm. Head fuscous; thorax and abdomen fuscous cinereous; fore wings pointed, somewhat falcate, light cinereous, with a smoky washing; fore wings without band, in some specimens without indications of one, in others with outer lines of a central band present, black, wavy on both sides, more separate at costa than at inner margin: hind wings unicolorous, discal spots faint or absent on all wings; beneath color as ground color above without markings.

Alaska; Oregon. This is closely allied with the two preceding. My material is not very large, and it is possible that with more material they may be found to intergrade. *X. nemorella* has superficially very much the same appearance as *Zenophleps lignicolorata* Pack., though the band of the fore wings is much more distinct.

X. volucer n. sp.—Expands 30-34 mm. Palpi ocher fuscous or blackish; front and thorax ocher fuscous, or fuscous gray. Abdomen ochreous; fore wings mouse-gray to ocher gray, darker narrowly along costa, unicolorous, except a broad outer lightening of color beginning at costa extending backward to vein 5, then making almost a right angle inward, gradually fading from costa and becoming lost beyond the angle: hind wings color of fore wings, or a shade lighter, unicolorous, or with a faint dentate black line running from middle of inner margin subparallel with outer margin and on submarginal space; beneath much as above on fore wings, but the marginal field darker; costal edge at base jet black, and an indication of a black line at costa within outer band, which is

fainter than above; hind wings mouse-gray, veins at cell some marked with black scales; an outer black line beginning at middle of inner margin ringing outwardly subparallel with outer margin, with outward teeth on veins becoming broken, indistinct and deeply dentate on veins towards anterior margin.

New Mexico; Arizona; Colorado. The New Mexico specimen from Mr. Cockerell taken at Santa Fé in July.

43. **LOXOFIDONIA** Pack.

Geom. Moths, 213, 1876.

Type *acidaliata* Pack.

Thyone Meyr, Tr. N. Zeal. Inst. xvi, 61, 1883, type *abrogata* Walk.

Asaphodes Meyr, Tr. N. Zeal. Inst. xviii, 184, 1885, type *abrogata* Walk.

Palpi long, porrect, long rough scaled, or hairy; tongue developed; front rough scaled; antennæ of ♂ bipectinate; thorax and abdomen rough scaled or hairy, untufted; hind tibiæ with all spurs. Wings broad, even; fore wings 12 veins, one accessory cell, 5 nearer 6 than 4 in type; hind wings 8 veins, 8 with cell almost its whole length.

The synonyms are given on authority of Mr. Meyrick.

Species.—*L. acidaliata* Pack.

L. frigidaria Guen.

MONOCTENIINÆ.

Synopsis of Genera.

1. Antennæ of ♂ bipectinate2.
- Antennæ of ♂ not bipectinate2. **Synomila.**
2. Fore wings 7 stemmed with 83.
- Fore wings 7 separate from 81. **Melanomma.**
3. Antennæ of ♂ with fascicles of hairs on short pectinations4. **Paota.**
- Antennæ of ♂ with long pectinations without fascicles of hairs.

3. **Hæmatopsis.**

1. **MELANOMMA** Grt.

Tr. A. E. S. 5, 117, 1875.

Type *auricinctarium* Grt.

Palpi long, slender, erect, or strongly ascending, end member longer than usual; tongue developed; antennæ of ♂ bipectinate, of ♀ filiform with a spinous hair from summit of each segment; hind tibiæ with all spurs; 12 veins, 6, 7, 8, 9, 10 and 11 separate, 6 below middle of cell, 12 free; hind wings, 3 and 4 short stemmed; 5 near to 4, 6 and 7 stemmed, 8 shortly joined to cell at base, diverging almost Sterrhid like.

I place this genus here doubtfully, as I am not altogether sure it is a Geometer. The venation of the hind wings is about as much like that of the Sterrhinæ as of this subfamily, but, in other respects while peculiar, it seems better placed here. I have no ♂, and can give only the character of the ♂ antennæ, which was the only structural character of the ♂ given by Mr. Grote.

Species.—*M. auricinctarium* Grt.

2. **SYNOMILA** n. gen.

Type *subochreata* Hulst.

Palpi short, slender; tongue obsolete; front flat; antennæ filiform pubescent in both sexes; hind legs without spurs, weak, somewhat aborted in ♂; fore wings one accessory cell, 12 veins, 6 separate; hind wings 8 veins, 3 and 4 separate, 6 and 7 stemmed, 8 with cell nearly to middle.

Species.—*S. subochreata* Hulst.

3. **HÆMATOPSIS** Hüb.

Verz. 301, 1818.

Type *grataria* Fab.

Palpi short, slender; tongue developed; front bulging, flattened; antennæ strongly bipectinate in ♂, simple in ♀; hind tibiæ with two pairs of spurs in both sexes; fore wings, one accessory cell, 12 veined, 6 separate; hind wings 8 veins, 3 and 4 separate, 6 and 7 stemmed; 8 joined with cell, but separating before middle.

Species.—*H. grataria* Fab.

4. **PAOTA** n. gen.

Type *fultaria* Grt.

Palpi moderate, slender, porrect; front flattened, scaled, untufted; tongue developed; antennæ shortly bipectinate in ♂, with a fascicle of hairs on each pectination; hind tibiæ with all spurs; fore wings 12 veins, one accessory cell, 6 and 7 separate; hind wings 8 veins, 3 and 4 separate, 6 and 7 stemmed, 8 joined with cell nearly to middle.

Species.—*P. fultaria* Grt.

STERRHINÆ.

The Sterrhinæ are a group separated by the peculiar merging of vein 8 of hind wings with the cell. They are, in the main, small, frail insects, and in the more specialized forms show decided pecu-

liarities. A very common, and perhaps the most remarkable of these, is the tendency of the hind legs to obsolescence, in part or as a whole. The spurs are often partly or altogether absent. Sometimes the hind tibiæ are largely developed with heavy hair pencil in the males, the tarsi being much shortened, and again the whole leg is sometimes practically obsolete in the males. The development seems to have been as follows: The hair pencil has developed on the hind tibiæ, and, with its increased development and use for ornamentation, the spurs and tarsi have been absorbed, so that the hind legs have become useless for their normal purpose. A change of development then seems to have taken place; the pencil has been gradually aborted, and the leg being useless for its normal purpose has tended to become obsolete. I have found no instance where the leg is absolutely wanting, but there are many where it is very decidedly reduced. This tendency, also shown among the Geometrinæ, is, so far as I know, unique among the Lepidoptera.

In this family the tongue is always developed, the fore tibiæ are never clawed, and the clypeus never tubercled. The venation of the fore wings is to an extent variable, but the number of accessory cells is rarely subject to variation. A peculiar feature is the abnormal and deltoid development of the palpi in a few species.

Of the typical genus *Sterrrha* Hüb., of which *Acidulia* Treit. is a synonym, I have as yet found no representative in our fauna.

STERRHINÆ.

Synopsis of Genera.

1. Hind tibiæ of ♀ with upper spurs present2.
- Hind tibiæ of ♀ with upper spurs absent13.
2. Hind tibiæ of ♂ with end spurs present3.
- Hind tibiæ of ♂ with end spurs absent9.
3. Hind tibiæ of ♂ with upper spurs present4.
- Hind tibiæ of ♂ with upper spurs absent6.
4. Palpi long5.
- Palpi moderate1. **Calothyranis.**
5. Palpi very long, deltoid; fore wings 10 on 9.5. **Mycterophora.**
- Palpi long, fore wings 10 on 11.4. **Prosaparia.**
6. Antennæ of ♂ bipectinate7.
- Antennæ of ♂ not bipectinate8.
7. Fore wings with accessory cell7. **Leucophthalmia.**
- Fore wings without accessory cell6. **Deptalia.**
8. Fore wings with accessory cell10. **Cinglis.**
- Fore wings without accessory cell17. **Sigela.**

shortly joined with cell then rapidly diverging; fore wing with apex extended, acute; hind wings quadrate with strong angle at vein 4 on outer margin.

Species.—*P. multilineata* Hulst.

3. **EUACIDALIA** Pack.

Fifth Report Peab. Acad. Sci. 69, 1873.

Type *sericeata* Pack.

Palpi moderate, slender, ascending; front smooth; antennæ of ♂ dentate ciliate; hind tibiæ of ♂ without spurs, without hair pencil, very weak and partially aborted, of ♀ with end spurs only; fore wings 12 veins, 6 separate, 10 on 9, 11 from cell; hind wings 8 veins, 6 and 7 stemmed; the outer edge of the wing is rounded in at vein 5, and again more slightly just above anal angle, this latter being more decided in the ♀ than in the ♂.

Very near to *Eois*, and distinguished only by the inner sinus of the hind wings at vein 5.

(Species.—*E. sericeata* Pack.

4. **PROSAPARIA** Grt.

Can. Ent. xv, 130, 1883.

Type *perfuscaria* Grt.

Palpi very long, projected forward, porrect or subascending; clypeus flat, close scaled; antennæ of ♂ bipectinate; tongue obsolete; thorax and abdomen untufted; fore tibiæ unarmed; hind tibiæ with two pairs of spurs; fore wings apex pointed, outer margin even, two accessory cells, 12 veins, 3 and 4 separate, 5 near 4, 6 separate, 7 separate, 8 stemmed with 9, 10 stemmed with 11, 12 separate; hind wings 8 veins, 3 and 4 separate, 5 near 4, 6 and 7 separate, 8 joined with cell shortly, then rapidly diverging.

Species.—*P. fuscaria* Grt.

5. **MYCTEROPHORA** n. gen.

Type *monticola* Hulst.

Palpi very long, deltoid like, slender, porrect, second member much the longest; tongue developed; antennæ strongly bipectinate in ♂, ciliate in ♀; front with loose hairs, scarcely tufted; hind tibiæ with two pairs of spurs; fore wings one accessory cell, 12 veins, 3 and 4 separate, 5 nearer 4 than 6, 6 separate from 7, 11 from cell separate from accessory cell; hind wings 8 veins, 3 and 4 separate, 5 nearer 4 than 6, 6 and 7 short stemmed, 8 shortly joined to cell, then rapidly diverging.

An aberrant genus, distinguished by the extraordinarily long palpi, which are much more extended than in any other American genus. I have only the ♂ of one species, and only the ♀ of the other, but as far as these give characteristics they are congeneric.

Species.—*M. monticola* Hulst, n. sp.

M. longipalpata Hulst, n. sp.

M. monticola n. sp.—Expands 32 mm. Palpi grayish black, ascending slightly, round, with loose projecting scales, end member black at base, blackish gray at end; front black, loosely scaled; summit buff colored; antennæ of ♂ black; thorax buff colored. Legs blackish, mixed with ocher, becoming ochreous at ends of joints; fore wings buff color, with an intermixing of fuscous scales, the color quite even over all wings; a basal black cross-line angulated at middle; a broad black cross-line at middle of wing, even, rounded on cell; an outer black cross-line narrower than the preceding, and nearly parallel with it, shortly dentate its whole length; the outer field slightly shaded: marginal line black; a black spot on cell half way between basal and middle cross lines, much further towards base than the ordinary position of the discal spot; hind wings with the lines of the fore wings continued, except that the basal is obsolete; the outer edge of the wings somewhat wavy: beneath faintly showing the markings above; colors all lighter.

Sierra Nevada, California.

M. longipalpata n. sp.—Expands 26 mm. Palpi dark gray, lighter towards base, rounded with loose scales; front black, summit gray; antennæ interlined, light gray and blackish; thorax fuscous gray; fore wings fuscous, pretty evenly sprinkled with blackish scales giving a dark fuscous gray color, there are also a few scattered scales of a violet-red color, these being more prevalent at base of fore wings, within discal spot, and over the middle and outer field of hind wings giving a faint violet shading to the wings; fore wings with a broken black basal line, a broken middle band, and a more distinct extra-discal line, narrow, black, broadly rounded at cell, wavy scalloped; a black spot on cell between first and second lines; marginal line black; hind wings with outer and marginal lines of fore wings; discal spot large, black, lengthened; both the fore and hind wings have waved outer margins; beneath as above, lighter and fainter.

Soda Springs, Siskiyou County, California. From Mr. Behrens, July 19.

✓ 6. **DEPTALIA** n. gen.

Type *insularia* Guen.

Palpi erect, reaching above head; tongue developed; front rounded, short scaled; antennæ strongly bipectinate in ♂; hind tibiae of ♂ with only end pair of spurs present, not swollen, without hair pencil; hind tibiae of ♀ with both pairs of spurs present; fore wings without accessory cell, discal cell short, 12 veins, 3 and 4 from a point, 6 separate, 7, 8, 9, 10 and 11 on one stem; a tufting of long scales

at base of wing on subcostal vein; hind wings 8 veins, cell short, triangular, 3 and 4 stemmed, 6 and 7 stemmed, 8 shortly joined with cell near base, then rapidly diverging.

Species.—*D. insularia* Gn.

7. **LEUCOPHTHALMIA** Hüb.

Verz. 302, 1818 (*Cyclophora* Hüb., Tentamen 1810).

Type *annulata* Schif.

Cyclophora Hüb., Verz. 302, 1818, type *annulata* Schlz.

Cosymbia Hüb., Verz. 302, 1818, type *pupullaria* Hüb.

• *Codonia* Hüb., Verz. 302, 1818, type *punctaria* L.

Pycis Hüb., Verz. 309. 1818. type *trilineararia* Bork.

Ephyra Dup., Hist. Nat. viii, 20, 1829, type *pendulinaria* Cl.

Zonosoma Led., Z. B. Ges. Wien, 194, 1853, type *pendulinaria* Cl.

Palpi moderate, subascending, slender; front smooth; antennæ of ♂ bipectinate, of ♀ filiform; hind tibiæ of ♂ with end spurs only not swollen and without hair pencil; hind tibiæ of ♀ with all spurs present; fore wings 12 veins, one accessory cell, 6 separate, 11 from cell; hind wings 8 veins, 3 and 4 separate, 6 and 7 stemmed, 8 shortly joined with cell, then rapidly diverging.

Mr. Meyrick calls this genus *Leucophthalmia*. *Cosymbia* is printed before it in the Verzeichniss, and so has priority in location, but under the rules the choice of Mr. Meyrick must be followed. *Cyclophora* is preoccupied in the Molusca.

Species:—

C. myrtaria Guen.

C. dataria Hulst.

C. culicaria Guen. [Guen.]

C. albocostaliata Pack.

C. lumenaria Hüb. (pendulinaria)

C. pannaria Guen.

C. serrulata Pack.

8. **SYNELYS** n. gen.

Type *ennucleata* Guen.

Palpi short, porrect; tongue developed; front flat, short scaled; antennæ dentate fascicled in ♂, ciliate in ♀. Abdomen of ♂ with small pencil of hairs laterally on last segment; hind tibiæ of ♂ lengthened, swollen, with hair pencil, without spurs, tarsi very short and small; of ♀ with two pairs of spurs, not swollen; fore wings 12 veins, one accessory cell, 6 widely separate, 10 on 9, 11 from cell; hind wings 8 veins, 6 and 7 separate, the wings with an angle at end of vein 4.

Species:—

S. ennucleata Gn. [Wlk.]

S. ordinata Wlk.

S. alabastaria Hüb. (reconditaria)

S. subquadrata Gn.

S. timandrata Wlk.

S. umbilicata Gn.

9. **XYSTROTA** n. gen.

Type *hepaticaria* Guen.

Palpi short, porrect; front smooth; antennæ of ♂ bipectinate with fascicle of hairs at end of each pectination; hind tibiæ of ♂ without spurs or hair pencil, the whole leg almost obsolete; hind tibiæ of ♀ without median spurs; fore wings 12 veins, 10 out of 9, two accessory cells; hind wings 8 veins, 6 and 7 stemmed.

Species.—*X. hepaticaria* Guen.

10. **CINGLIS** Guen.

Phal. ii, 114, 1857.

Type *humifusaria* Evers.

Palpi moderate, porrect, rough scaled; face smooth; antennæ of ♂ bipectinated, pectinations short, ending in fascicles of long cilia; thorax glabrous beneath; femora glabrous; posterior tibiæ of ♂ without median spurs, slender; of ♀ with all spurs present; fore wings 10 out of 9, 11 anastomosing with 9; hind wings 6 and 7 stemmed.

This is Mr. Meyrick's description of the genus. I have not seen the type.

Species:—

<i>C. luteolata</i> Hulst.	<i>C. compensata</i> Wlk.
<i>C. similaria</i> Walk.	<i>C. ancellata</i> Hulst.
<i>C. quadrilinearia</i> Pack.	<i>C. fuscata</i> Hulst.
<i>C. purata</i> Gn.	<i>C. albidula</i> Hulst, n. sp.

C. albidula n. sp.—Expands 21 mm. Palpi whitish below, blackish above; front blackish; thorax and abdomen white; all wings pure snow-white, with a few scattered black scales intermixed; fore wings with a faint blackish basal line, not on hind wings; also, and continued on the hind wings, an intra-discal scalloped line, dentate outwardly on veins where the black is emphasized; this is slightly rounding in its course on both wings; on the hind wings the black discal point is outwardly in one of the scallops; a submarginal, slightly wavy, dentate black line, parallel with outer margin, and on hind wings as well: marginal line fine black; discal spots on all wings, fine, black; beneath as above, more faintly revealing the cross-lines.

S. Florida. From Mrs. Slosson.

11. **SCELOLOPHIA** n. gen.

Type *formosa* Hulst.

Palpi short, slender; front closely scaled; antennæ subdentate, fascicled ciliate; thorax even. Abdomen even, tufted laterally on last segment, and with strong hair tufts on second and third segments

below; hind tibiae in ♂ short, without spurs, with strong hair pencil, and the whole tibia with a fringe of hair; tarsi short. Wings even, the hind wings below with a fringe of hairs bent backward at base of vein 8, and a smaller fringe at vein 1a.

I have the ♂ only, and can give a diagnosis from it alone.

Species.—*S. formosa* Hulst, n. sp.

S. formosa n. sp.—Expands 18 mm. Palpi ochreous, with a reddish tinge; front dull reddish ochreous; thorax light violet lavender. Abdomen ochreous; fore wings light violet lavender, with some scattered blackish scales; fore wings with costa dull red; cross-lines broad, faint, yellow ocher, one intra-discal, a second extra-discal, a third outer, and a fourth submarginal; the outer line is undulate with a rounding outward at cell and vein 2; the submarginal line runs into the outer margin at vein 3; margin rather darker reddish; hind wings corresponding to fore wings, but third line becomes submarginal, and fourth line is wanting, all very faint as in fore wings; beneath fore wings light reddish ochreous, hind wings yellow ocher at base, light ocher outwardly.

Texas.

12. **CHAROMMATÆA** n. gen.

Type *ella* Hulst.

Palpi moderate, porrect, rather stout, long scaled below; tongue developed; front close scaled, smooth; antennæ simple, fascicled ciliate; thorax and abdomen smooth; hind tibiae of ♂ swollen, rather short, with pencil or fringe of long fine hairs clothing inner side; no spurs present; upper tarsus swollen, lengthened; also edged with long fine hairs, end tarsi slightly developed; hind tibiae in ♀ with two pairs of spurs; fore wings rounded, even, two accessory cells, 12 veins, 6 separate from 7; hind wings rounded, with a slight tendency to angulation at vein 4, 8 veins, 3 and 4 separate or at a point.

Easily known by the unique shape and pencilings of the hind legs in ♂. The only species is very different in coloration from any of our other species, and would scarcely be taken for a Sterrhid.

Species.—*C. ella* Hulst, n. sp.

C. ella n. sp.—Expands 25–30 mm. Palpi dull purple reddish; front dull reddish; thorax bright golden-yellow. Abdomen fuscous yellow. Wings bright clear yellow; fore wings with faint, rather broad blackish basal line showing in three or four spots; a faint extra-discal line, and an outer row of spots showing between the veins; this is followed by a submarginal band of spots, larger and more strongly marked, the ones at anal angle and middle of the wings being much larger and more distinct; a marginal row of black dots between the veins; discal spot large, round, distinct, blackish; hind wings with the lines of the fore wings continued, except basal line; beneath as above, but washed with purple reddish.

Central Texas. Very different in appearance from any other Sterrhid, and a most beautiful insect.

C. ella var. *ellatina* n. var.

I have specimens from San Antonio, Texas, where the brilliant golden yellow is buff with a reddish tinge, with the lines more distinct, and the red below more decided, and to them I give this varietal name. They have quite a distinct appearance.

13. **LEPTOMERIS** Hüb.

Verz. 310, 1818.

Type *umbellaria* Hüb.

Craspedia Hüb., Verz. 312, 1818, type *ornata* Scop.

Dosithea Dup., Hist. Nat. viii, 43, 1829, type *ornata* Scop.

Palpi short or moderate, subascending; face smooth; antennæ serrate, or dentate fasciated; hind tibiæ of ♂ swollen, long, with hair pencil, without spurs; of ♀ with all spurs; hind tarsi of ♂ short, weak; fore wings 12 veined, 10 out of 9, 11 from cell anastomosing with 9; hind wings with 6 and 7 separate or stemmed.

Species:—

<i>L. gemmata</i> Pack.	[Hulst.]	<i>L. quinquelinearia</i> Pack.
<i>L. leucataria</i> Hüb. (minutularia)		<i>L. sentinaria</i> Hüb.
<i>L. occidentata</i> Pack.		<i>L. magnetaria</i> Gn.
<i>L. levitaria</i> Hüb. (floridata Pk.)		<i>L. frigidaria</i> Moesch.
<i>L. roseotincta</i> Hulst, n. sp.		<i>L. ostentaria</i> Walk.
<i>L. æmulata</i> Hulst, n. sp.		<i>L. plantagenaria</i> Hulst.

L. roseotincta n. sp.—Expands 18 mm. Palpi reddish ocher; front and thorax reddish ocher. Abdomen ocher, with a reddish tinge, the segments interlined with blackish. Wings bright straw-yellow, basal field on all wings reddish pink, and on all wings an outer rather broad band of the same color, irregular on margins; on fore wings there is an extension outwardly to outer margin between veins 3 and 4, and the same on hind wings from veins 2 to 4; beneath as above exactly, and just as bright in color. Legs white or ocher, tinged with reddish.

Florida.

L. æmulata n. sp.—Expands 18-20 mm. Palpi dark fuscous, black at end; front blackish; summit ocher; thorax ocher to whitish, with a few black scales intermixed. Abdomen whitish at base, becoming ocher posteriorly, and with blackish interlinings; all wings dull clay-white with an ocher tinge, powdered slightly with loose, scattered, blackish scales; fore wings with a faint, dark fuscous, extra-discal band, subparallel with outer margin, generally obsolete anteriorly, more definite towards inner margin; submarginal space fuscous, more decided towards anal angle with an inner row of black dots on veins, and an included wavy lighter line, marginal spots black; hind wings with the bands and lines of fore wings continued, but darker and more distinct; all discal spots black,

distinct: beneath as above, the black powdering more dense and distinct and the darker bands more emphasized.

Charlotte Harbor, Florida, from Mrs. Slosson, taken in March. The specimens are not bright in color and may have hibernated. The species is in appearance very much like *Cinglis compensata* Wlk.

14. **EOIS** Hüb.

Verz. 308, 1818.

Type *muricata* Hufn.

Arrhostia Hüb., Verz. 311, 1818, type *aversata* L.

Ptychopoda Steph., Cat. 150, 1829, type *dilutaria* Hüb.

Hyria Steph., Cat. 150, 1829, type *muricata* Hüb.

Carphoxera Riley, Insect Life, iv, 112, 1892, type *ptelearia* Riley.

Palpi short or moderate, rather slender; front smooth; antennae serrate or dentate in ♂, with fascicles of hairs; hind tibiae without spurs in ♂, the whole leg more or less aborted, tibiae with hair pencil; in ♀ middle spurs wanting; fore wings 12 veins, 10 on 9, 11 from cell; hind wings 8 veins, 6 and 7 stemmed or rarely separate.

Species:—

E. parvularia Hulst.

E. ptelearia Riley.

E. scintillaria Hulst. [Pack.]

E. demissaria Hüb. (ferrugata)

E. hilliata Hulst.

E. flavescens Hulst, n. sp.

E. microphysa Hulst, n. sp.

E. delicata Hulst, n. sp.

(*E. peralbata* Pack.)

E. longipennata Pack.

♂ *E. nimbicolor* Hulst, n. sp.

(*E. ossularia* Hüb.)

E. granitata Pack.

E. lanceolata Hulst, n. sp.

E. balistaria Hüb. (perirrorata)

E. rufescens Hulst, n. sp. [Pack.]

E. pallida Hulst, n. sp.

(*E. eburneata* Guen.)

E. lacteolata Lint. [briata Pk.]

E. obfustaria Walk. (punctofini-

E. volucrata Hulst.

E. quesitata Hulst.

E. rotundopennata Pack.

E. inductata Guen.

E. productata Pack.

E. australis Hulst, n. sp.

E. sideraria Guen. [Pack.]

E. anticaria Walk. (subalbata)

E. basipunctaria Walk.

E. refractaria Walk.

E. albifera Walk.

E. flavescens n. sp.—Expands 20 mm. Palpi ocher; front fuscous ocher; thorax, abdomen and all wings light ocher; the fore wings are slightly darker basally along costa, and there is a very faint, slightly darker outer rounded line; discal spot very faint on fore wings, smaller, more distinct on hind wings, blackish; beneath as above, the outer line of fore wings showing a little more plainly.

Locality unknown, but from the United States, and probably from Texas.

E. microphysa n. sp.—Expands 14 mm. Palpi and front jet black; summit between the antennæ pure white; collar blackish; thorax dark gray. Abdomen dark gray, interlined with blackish; all wings light gray, very thickly powdered with blackish and fuscous scales giving a general dark gray color, this varying in intensity a little, and thus showing faintly a broad extra basal band running nearly parallel with outer margin, also a slight lightening into a submarginal shading parallel with margin, the hind wings continuing these; discal spots blackish, fairly distinct; beneath much as above, but more fuscous and less clear.

Panamint Valley, California. From Dr. Riley, taken by Mr. Koebele on the Death Valley Expedition. In National Museum collection.

E. delicata n. sp.—Expands 17 mm. Palpi and front fuscous ocher; thorax ochreous, as is also the abdomen; all wings straw ochreous; fore wings extended, pointed, very rounded at anal angle giving the wings an almost even lanceolate form; a black, rather broad basal line, angulated outwardly on cell, from thence straight to inner margin; a blackish intra-discal band and a black extra-discal line slightly bent outward beyond discal spot and inward near inner margin; a submarginal fuscous cloud, broadest at vein 6 and between veins 3 and 5; hind wings with the middle and outer lines and the submarginal shading of the fore wings continued, the shading broadest between veins 2 and 4, and between 6 and 7; beneath as above, but fainter.

Las Cruces, New Mex., from Mr. Cockerell.

E. nimbicolor n. sp.—Expands 17 mm.—Palpi dark fuscous gray; front blackish; thorax gray. Abdomen fuscous gray. Wings even light ash-gray, with three not very distinct black wavy cross-lines, generally showing in scattered black scales, one intra-discal, another extra-discal, rather broad, showing more distinctly at costa and on the wings; a third line outer, finer, very indistinct on fore wings, except at costa; more distinct in black dots on hind wings; discal spot on hind wings faint, on fore wings not evident; below even cinereous.

Florida, taken in April.

E. lanceolata n. sp.—Expands 18-20 mm. Very much in coloration and appearance as *Eois nivalis*, the wings scarcely so extended and pointed. Palpi gray, blackish on tip; front and thorax white, with an intermixture of blackish scales. Abdomen white, with interlining of fuscous; all wings white, with scattered fuscous scales a little thicker in spots and lines; a broad intra-discal fuscous cross-line, not very distinct, and the submarginal space fuscous, inner edge even, parallel with outer margin; hind wings with corresponding bands, marginal lines fuscous, narrow, fringes white, with scattered dark scales; beneath as above, more clear and distinct.

Argus Mountains, California, April, from Dr. Riley, and taken by Mr. Koebele on, I believe, the Death Valley Expedition. In National Museum collection.

E. rufescens n. sp.—Expands 20 mm. Palpi whitish, fuscous tinged; front the same color; thorax ochreous fuscous. Abdomen ochreous; fore wings rusty ochreous, even in color, with blackish discal spot and faint indications in a light-

ened color of even, straight, submarginal lines, nearly parallel with outer margin; marginal line blackish, fringes white, interlined with black; hind wings dirty light fuscous, with faint shadings of extra-discal darker lines; discal spot blackish; marginal line blackish: fringes white, with blackish scales intermixed; beneath lighter and more clear in color than above, the fore wings powdered with black apically and submarginally, and the hind wings over the whole surface; discal spots clear, distinct.

Austin, Texas. Very near in the shape and character of markings, so far as they are apparent, to *E. perirrorata* Pack.

E. pallida n. sp.—Expands 18 mm. Palpi and front jet black; thorax sordid gray. Abdomen gray at base, ochreous posteriorly, with a jet black lateral longitudinal dash on third and fourth segments; antennæ with fascicles of hairs in ♂; all wings whitish, pretty generally sprinkled over with fuscous scales, giving a general dull whitish appearance; fore wings with a broken, indefinite black basal line, another extra-discal, more distinct, but yet broken, rounding at discal spot, irregular, extending within discal spot rather evenly, and more distinct across hind wings: an outer black line, broken, very irregular and indefinite, continued clearly and sharply across hind wings, where it is irregularly and deeply dentate; marginal line of black spots largely obsolete; discal spots black; beneath as above, the lines more indistinct and costa dark fuscous.

Blanco County, Texas.

E. australis n. sp.—Expands 26 mm. Palpi fuscous ocher; front black; thorax and abdomen ocher; all wings ocher, slightly washed with fuscous, and with scattered fuscous scales; on the fore wings the fuscous is slightly deepened, giving faint indications of an extra-discal and outer waved cross-lines, which are continued a little more distinctly across hind wings; margins slightly fuscous; beneath as above, slightly lighter in color, with the lines more even and a little more distinct.

Florida, from Mr. E. L. Graef.

15. EMMILTIS Hüb.

Verz. 309, 1818.

Type *pygmæaria* Hüb.

Anthometria Bois., Index Meth. 231, 1840, type *plumularia* Bois.

Palpi moderate, front smooth, or somewhat tufted; antennæ bipectinate in ♂; hind tibiae of ♂ not swollen, without hair pencil, with end spurs only; of ♀ with end spurs only; fore wings 12 veins, 10 from 9, 11 from cell; hind wings 8 veins, 6 and 7 stemmed.

I do not know that the typical genus *Sterrhæ* is represented in the United States. It differs from *Emmiltis* in having simple antennæ in ♂. I have only the ♀ of *floridata*, and it is possible the ♂ may show it to belong to *Sterrhæ*.

Species.—*E. sparasaria* Wlk. (*psilogrammaria* Zell.)

E. floridata Hulst.

16. **PTENOPODA** n. gen.Type *miranda* Hulst.

Palpi short, slender; front smooth; antennæ simple, ciliate fascicled; hind tibiæ of ♂ without spurs, long, lined the whole length with a fringe of long hairs, and with a long thick pencil of hairs; middle tibiæ also fringed with long hairs; fore tibiæ very long, considerably longer than femora, very slender, closely scaled; tarsi almost aborted on hind legs, and apparently entirely so on middle legs; fore wings 12 veins, 6 separate, 10 on 9, 11 from cell, one accessory cell; hind wings 8 veins, 6 and 7 stemmed.

Remarkable for the peculiar fringing of the middle and hind tibiæ in ♂, and in this unique so far as I know.

Species.—*P. miranda* Hulst, n. sp.

P. miranda n. sp.—Expands 24 mm. Palpi ocher fuscous, black at tip; front black; summit between antennæ, thorax and abdomen basally light ocher, the abdomen becoming ocher fuscous posteriorly; fore wings whitish ocher sprinkled with fuscous scales, but not so plentifully on middle field; a faint sinuous basal line; a broad fuscous line passing just beyond discal spot, wavy sinuate; an outer fuscous line indistinctly dentate, subparallel with outer margin; a submarginal fuscous clouding divided by a lighter colored space; marginal line of black dots; hind wings light ocher with fuscous atoms, extreme base fuscous, and the outer lines and shadings of the fore wings continued; a marginal line of black points; the marginal dots are in all wings in the fringes just at end of veins; hind wings slightly sinused in below anterior angle on outer margin from veins 7 to 5; below as above, but fainter. Legs with fringes bright ocher, the pencil of the hind wings being blackish basally, becoming ocher at ends.

Blanco County, Texas.

17. **SIGELA** n. gen.Type *perumbata* Hulst.

Palpi moderately long, subascending; front rounded, short scaled; antennæ evenly ciliated with hairs in ♂; a pointed projection inside on summit of basal member in ♂; between the antennæ a smooth flattened scale pad overhanging front; hind tibiæ with two pairs of spurs in both sexes; fore wings without accessory cell, 12 veins, 6 separate, 10 from 9, 11 from cell; hind wings 8 veins, 6 and 7 long stemmed.

A very peculiar, and so far as I know, unique genus, having what seem to be leanings towards the Tineidæ. The overhanging scale tuft on summit of head is very rarely found, *Philagraula* being the only genus I know of, and this is, with some doubt, a Geometer. The projection on base of antennæ is so far as I know unique among

the Geometrina. There is one inner vein only to fore and hind wings, and these are not furcate.

Species.—*penumbrata* Hulst, n. sp.

S. penumbrata n. sp.—Expands 14–16 mm. Palpi jet black, front dark fuscous; head tuft and thorax smooth, even mouse-gray. Abdomen dark fuscous gray, slightly interlined with lighter color; all wings blue-gray or light mouse color with a violet tinge in certain lights with three or four indistinct dark spots along costa; in old specimens there is an indication of cross-lines in the more mottled surface, this being more shown extradiscally on hind wings; discal spots fine, black, not very distinct; marginal line dark gray, indistinct, as though the wing edge were black, and this covered over with gray scales and showing through; beneath even light mouse-gray, discal spots and marginal lines faintly showing.

Archer, Fla., March and April, from Dr. Riley, taken by Mr. Koebele.

18. **LOPHOSIS** n. gen.

Type *labeculata* Hulst.

Palpi very short, slender; front short scaled; antennæ of ♂ subdentate with fascicles of hairs; fore wings probably with 12 veins; hind wings 8 veins, the inner margin in ♂ with an edging of long coarse hairs near base; hind tibiæ of ♂ without spurs and with strong hair pencil.

The unique specimen of the single species is in poor condition, and I am unable to examine the venation fully. The tufting on the inner margin of hind wings of the ♂ warrants generic separation.

Species.—*L. labeculata* Hulst.

19. **GONIACIDALIA** Pack.

Fifth Report Peab. Acad. Sci. 68, 1873.

Type *furciferata* Pack.

Palpi short, slender, front smooth; antennæ simple, evenly ciliate; hind tibiæ of ♂ very weak, the whole leg partially aborted; fore wings 8 veined; 8, 9 and 10 wanting, 5 near 6; or the interpretation may be: 5 wanting, 6 and 7 separate, 7 separate from 8, 9 and 10 wanting; on the inner margin of the wing within vein 2 is a swelling out of the wing modified above into a sort of a fovea covered with enlarged scales; it is probably an incomplete fold; hind wings very much distorted in venation; 6, 7 and 8 present as usual, 6 and 7 stemmed, but the posterior part of the wing formed into a broad fold extending the whole length of the inner margin, the venation being greatly distorted; the fold is edged within with long

hairs and extends beyond the wing, forming an ear-like appearance to the anal angle.

The genus forms a transition to our genera which fall under the Strophidiinæ, but from the characteristic union of vein 8 and the cell of hind wings must be referred to the Sterrhinæ. I do not know the ♀.

Species.—*G. fureiferata* Pack.

STROPHIDIINÆ.

The North American representatives of this subfamily are very few in number, and are quite distinct from the more typical members of the family. In two of the species the hind wings are incised on the outer margin, and in the third the anterior margin on the hind wings is strongly sinuate. The species are without the humeral angle of vein 9 at base of hind wings.

I have hitherto called this subfamily the Microniinæ. Mr. Meyrick calls attention to the fact that *Micronia* Guen. is a synonym of *Strophidia* Hüb., and of course the family name must be based on a genus, not a synonym.

Synopsis of the STROPHIDIINÆ.

1. Hind wings with fold along inner margin in ♂2.
Hind wings without fold.2. **Calledapteryx.**
2. Hind wings with vitreous spot above at base of cell in ♂ ..3. **Philagraula.**
Hind wings without vitreous spot.....1. **Callizzia.**

CALLIZZIA Pack.

Geom. Moths, 314, 1876.

Type *amorata* Pack.

Palpi small, porrect or drooping; clypeus flat, scaled; antennæ dentate in ♂, ciliate in ♀, finely pubescent; fore tibiæ unarmed; hind tibiæ swollen, with two pairs of spurs; fore wings no accessory cell, 12 veins, 3 and 4 separate at lower angle of cell, 5 close to 6 at upper angle, 6 and 7 stemmed from angle, 8 and 9 stemmed from anterior part of cell; 10, 11 and 12 separate; hind wings with two notches or angles on outer margin at veins 4 and 7. In ♂ 1 wanting, 3 and 4 from angle, 5 weak, 6 and 7 close, the wing surface extended along inner margin making a hollow fold turned upward; in ♀ venation normal; in both sexes 8 at once broadly diverging from cell.

Species.—*C. amorata* Pack.

ALLEDAPTERYX Grt.

Trans. Am. Ent. Soc. ii, 119, 1868.

Type *dryopterata* Grt.

Palpi very small, porrect, slender; clypeus flat, closely scaled; antennæ ciliate, slightly flattened. Legs rather short, fore tibiæ unarmed; hind tibiæ swollen, with two pairs of spurs; thorax and abdomen untufted; fore wings arched at base of costa, then somewhat concave, very rounded at apex, angulated at middle, strongly concave on hind margin, 12 veins, no accessory cell, 3 and 4 at lower angle of cell, 5 close to 6 at upper angle, 6 and 7 stemmed from point of cell, 8 and 9 stemmed from anterior part of cell, 10 and 11 from near base; hind wings with two angles on outer border, 8 veins, 3 and 4 stemmed, 5 nearer 6 than 4, 6 and 7 stemmed, 8 at once broadly diverging from cell.

Species.—*C. dryopterata* Grt.**PHILAGRAULA** n. gen.Type *slossoniæ* Hulst.

Palpi moderate, slender, closely scaled, subascending; clypeus flat, closely scaled with overhanging scale tuft from base of antennæ; antennæ flattened, finely pubescent; thorax and abdomen closely scaled, untufted. Legs short, quite stout, fore tibiæ unarmed, hind tibiæ swollen, with two pairs of long spurs, the upper being the longer; fore wings rounded at apex, nearly even on outer margin, concave on inner margin, no accessory cell, 12 veins, 3 at lower angle of cell, 4 on outer margin of cell below middle, 5 near 6 at angle, 6 and 7 stemmed, 8 and 9 stemmed, 10 close to stem of 8 and 9, 11 from anterior part of cell; hind wings sinuate on outer margin, the outer reaches being at 4, 6 and 7, anterior margin broadly developed near base, 8 veins, 2 from near base of cell, 3 and 4 from angle, 5 from middle of cell, 6 and 7 from angle, 8 at once broadly diverging from cell reaching to apex.

Species.—*P. slossoniæ* Hulst, n. sp.

P. slossoniæ n. sp.—Expands 25 mm. Palpi and front inky black; antennæ and antennal tuft a soft ochreous brown; thorax the same color, faintly washed with violet. Abdomen more ochreous. Wings violet-brown, more ochreous on the inner half, all slightly speckled with darker brown scales; fore wings with faint traces of two fine basal lines, with a triangular blackish patch at middle of costa with point reaching one-third across wing, the base being on costa and longest; another smaller corresponding blackish patch opposite along inner margin, the limiting line being inky black, and the spot reaching one-fourth across the wing, its apex being towards the apex of the costal triangle; a dark

marginal subapical spot reaching to middle of outer margin; a faint outer line, wavy, subparallel with margin; hind wings with jet black point a little out from base not far from anterior margin; a sinuate cross-line of reddish brown near middle, edged outwardly with light ochreous; beneath violet-brown with scattered darker scales, with faint indications of two black cross-lines at middle of inner margin on fore wings; fore tibiae and all tarsi more or less washed with violet-brown.

One ♂, South Florida, from Mrs. Slosson, to whom I respectfully dedicate it.

GEOMETRINÆ.

The Geometrinæ are very closely related to the Sterrhinæ. They consist of the same small frail insects, with the same aspect, and with, in the main, the same structure. They are, however, generally easily distinguished by their color, which has given them the designation "the greens." While the Sterrhinæ approach the characteristic venation of the Geometrinæ, there is no difficulty in separating them by the position of vein 5 of both wings. These subfamilies seem also to divide on the structure of the antennæ. So far as I have examined the antennæ of the species, which are bipectinate in the male, those of the Sterrhinæ have the pectinations situated upon the bottom of the segments, while those of the Geometrinæ have them upon the top. The Geometrinæ have the same tendency towards the obsolescence of the hind legs already noticed in the Sterrhinæ.

The larvæ, so far as known, are characteristic and peculiar. They are furnished with protuberances on the segments, and have, to some extent, the habit of covering themselves with débris of leaves, thus more effectually concealing themselves.

The family as limited seems to include more specialized forms of other subfamilies. Among our species, apart from the characteristic venation, there are found some with the distinctive venation of the Hydriominæ, some with that of the Sterrhinæ, and some with that of the Ennominæ. They make distinct sections of the subfamily, and I am not entirely sure but that the genus *Annemoria* would better be placed with the Hydriominæ. The subfamily is mostly tropical, and our species are few and rarely plentiful.

I suspect that some of our genera will be found identical with others described from tropical material from both hemispheres, but nothing definite can be determined till types are examined and compared, which I have not had the opportunity of doing. The typical genus *Geometra* I have not found in our fauna. *Anaploides* is very

close to it, but differs in that the antennæ of the ♂ are not bipectinate to the apex.

Synopsis of the GEOMETRINÆ.

1. Hind wings 8 separate from cell, Ennomid like.....2.
Hind wings 8 more or less joined with cell4.
2. Hind tibiæ of ♂ with hair pencil9. **Aplodes.**
Hind tibiæ of ♂ without hair pencil.....3.
3. Hind tibiæ of ♂ with two pairs of spurs.....10. **Anaplodes.**
Hind tibiæ of ♂ with one pair of spurs8. **Chlorosea.**
4. Hind wings vein 8 shortly joined with cell, then rapidly diverging, Sterrhid-like....5.
Hind wings veins 8 joined with cell one-half its length, Hydrimenid like.
1. Annemoria.
5. Hind tibiæ of ♂ with end spurs only6.
Hind tibiæ of ♂ upper and end spurs.....9.
6. Antennæ of ♂ bipectinate7.
Antennæ of ♂ not bipectinate.....3. **Nemoria.**
7. Palpi long in both sexes.....5. **Chloropteryx.**
Palpi not long in both sexes8.
8. Palpi short in ♂ : hind tibiæ of ♂ with hair pencil....2. **Chloroclamys.**
Palpi short in both sexes; hind tibiæ of ♂ without hair pencil.
4. Eucrostis.
9. Palpi long in both sexes6. **Racheospila.**
Palpi long in ♀ only7. **Synchlora.**

1. ANNEMORIA Pack.

Type *unitaria* Pack.

Palpi moderate, ascending, scaled; clypeus flat, untufted; antennæ of ♂ bipectinate, the pectinations much longer than usual, of ♀ dentate; thorax and abdomen untufted; fore tibiæ unarmed; hind tibiæ with one pair of spurs in both sexes; fore wings even, 12 veins, 3 and 4 from angle, 6 at a point with 7, 10 on 9, 11 from cell, 12, 11 and 10 anastomosing forming subcostal and one accessory cell; hind wings 8 veins, 3 and 4 at angle, 6 and 7 stemmed, 8 with cell one-half or more of its length.

Very peculiar in the Hydrimenid-like union of 8 with cell in hind wings.

Species:—

A. bistriaria Pack.
A. faseolaria Gn.

A. graefaria Hulst.
A. unitaria Pack.

2. CHLOROCHLAMYS n. gen.

Type *chloroleucaria* Guen.

Palpi moderate, end member short in ♂, long in ♀, subascending; front flat, short scaled; antennæ strongly bipectinated in ♂,

ciliate in ♀; fore tibiæ unarmed; hind tibiæ with one pair of spurs in both sexes, in ♂ with long pencil of hairs; thorax and abdomen untufted; fore wings 12 veins, 10 on 9, 11 from cell, 12 free or anastomosing with 11; hind wings 8 veins, 3 and 4 separate, 6 and 7 stemmed, 8 joining cell near base then rapidly diverging.

Differs from *Euehloris* Hüb. in that the palpi of ♀ are long; from *Synechlora* Guen. in that there is one pair of spurs only present in both sexes.

Species. — *C. chloroleucaria* Gn.

(*C. phyllinaria* Zell.

3. **NEMORIA** Hüb.

Verz. 285, 1818.

Type *viridata* Linn.

Chlorissa Steph., Ill. iii, 315, 1831. type *viridata* L.

Palpi moderate, or rather long, porrect; clypeus flat, short scaled; antennæ in ♂ serrate or filiform, in ♀ ciliate or fascicled; hind tibiæ of ♂ without middle spurs, sometimes swollen without hair pencil, of ♀ with both pairs of spurs; hind tarsi in ♂ sometimes shortened; fore wings 12 veins, 10 out of 9, 11 from cell; hind wings 8 veins, 3 and 4 stemmed or separate, 6 and 7 stemmed.

Species. — *N. pistaciata* Guen.

(*N. suberoceata* Wlk.

N. euehloria Ab. and Gu.

4. **EUCROSTIS** Hüb.

Verz. 283, 1818.

Type *indigenata* Vill.

Palpi short in both sexes, rather ascending, long haired below at base; clypeus hairy scaled; antennæ in ♂ with short pectinations; thorax and abdomen untufted, the thorax rather hairy scaled above, strongly hairy below; fore tibiæ unarmed, hind tibiæ with one pair of spurs in both sexes, without hair pencil in ♂; fore wings 12 veins, 6 separate, 10 on 9; 10, 11 and 12 anastomosing; hind wings 8 veins, 3 and 4 short stemmed, 6 and 7 stemmed, 8 shortly with cell, then rapidly diverging.

Sufficiently distinct from *Chlorochlamys* in that the palpi are short in both sexes, the thorax hairy below, and the hair pencil wanting in the hind tibiæ of the ♂.

Species. — *incertata* Wlk. (*operabia* Zell., *gratata* Puck.)

viridipennata Hulst, n. sp.

E. viridipennata n. sp.—Expands 23-25 mm. Palpi short in both sexes, hairy below at base, white with a smoky tint; front clay ochreous; thorax and abdomen clay ochreous, with a dull greenish shade; fore wings dull even pea-green, without indication of any cross-lines, or with an outer cross-line parallel with margin, even, very faint; the ground color of wing is slightly emphasized on the veins; hind wings color of fore wings, slightly paler basally, without cross-lines; beneath lighter green, even, unicolorous, except that hind wings are a shade lighter basally. Legs clay white, becoming somewhat smoky towards thorax.

Colorado.

5. **CHLOROPTERYX** n. gen.

Type *tepperaria* Hulst.

Palpi porrect, end member long in both sexes; front flat, closely scaled; antennæ bipectinate in ♂, dentate in ♀; thorax and abdomen untufted; fore tibiæ unarmed; hind tibiæ of ♂ wanting in only specimen I have, the ♀ with two pairs of spurs; fore wings even, 12 veins, 3 and 4 separate, 6 separate, 10 on 9, 11 from cell, 12 anastomosing with 11; hind wings quadrate, with prominent angle at end of vein 4, 8 veins, 3 and 4 stemmed, 6 and 7 stemmed, 8 shortly joined to base, then rapidly diverging.

Species.—*C. tepperaria* Hulst.

6. **RACHEOSPILA** Guen.

Phal. i, 372, 1857.

Type *lixaria* Guen.

Palpi long in both sexes, second member ascending, end member porrect or drooping; clypeus somewhat scale tufted; antennæ bipectinate in ♂, ciliate in ♀; thorax and abdomen untufted; fore tibiæ unarmed, hind tibiæ of ♂ with two pairs of spurs and hair pencil; of ♀ with two pairs of spurs; fore wings 12 veins, 6 separate, 10 on 9, 11 from cell, 12 and 11 anastomosing with each other or separate; hind wings 8 veins, 3 and 4 together from angle, 6 and 7 stemmed, 8 shortly joined with cell near base, then rapidly diverging.

Species:—

R. lixaria Gn.

R. hollandaria Hulst.

R. jaspidiaria Hulst.

R. saltusaria Hulst.

R. xysteraria Hulst.

7. **SYNCHLORA** Guen.

Phal. i, 375, 1857; *Eumemoria* Pack., 5th Peab. Rept. p. 76, 1873.

Type *liquoraria* Guen.

Palpi short, ascending in ♂; long, porrect or drooping in ♀, the end member especially lengthened; clypeus flat, scaled; antennæ bipectinated in ♂, ciliate in ♀; thorax and abdomen untufted; fore

tibiæ unarmed; hind tibiæ with two pairs of spurs in both sexes; fore wings 12 veins, 3 and 4 at angle, 6 separate, 10 on 9, 11 from cell; hind wings 8 veins, 3 and 4 separate or short stemmed, 6 and 7 stemmed, 8 joined to cell shortly then rapidly diverging, the union being rather longer than usual and the divergence less rapid.

Species:—

S. glaucaria Gn.

S. liquoraria Gn.

S. viridipallens Hulst, n. sp. [Pk.]

S. rubrifrontaria Pack.

S. denticulata Walk. (excurvata)

S. dominicaria Gn.

S. viridipallens n. sp.—Expands 24–26 mm. Palpi and body parts discolored in relaxing, probably whitish green, the palpi red at end; front red; fore wings vestiture squamose, thin, even dull ochre green without lines; hind wings a lighter unicolorous, scarcely greenish; beneath nearly the color of hind wings above.

Colorado; Arizona.

8. **CHLOROSEA** Pack.

Proc. Bost. Soc. Nat. Hist. xvi, 31, 1874.

Type *nevadaria* Pack.

Palpi scaled, not heavy, subascending; clypeus flat, with a tendency to a scale ridge below; antennæ bipectinated in ♂, ciliate in ♀; thorax and abdomen untufted; fore tibiæ unarmed; hind tibiæ with one pair of spurs in both sexes; fore wings even, no accessory cell, 12 veins, 3 and 4 from angle, 6 from a point or short stemmed with 7, 10 on 9, 11 from cell, 12 separate; hind wings 8 veins, 3 and 4 from angle, 6 and 7 stemmed, 8 separate from cell.

Species.—*C. nevadaria* Pack.

9. **APLODES** Guen.

Phal. i, 376, 1857.

Hipparchischus Walsh, Proc. Bost. Soc. Nat. Hist. ix, 300, 1864.

Type *mimosaria* Guen.

Palpi projecting beyond head, long scaled, ascending; clypeus flat, slightly scale tufted below; antennæ ♂ shortly bipectinated; thorax and abdomen untufted; fore tibiæ unarmed, hind tibiæ in both sexes with two pairs of spurs, the lower pair small in ♂; hair pencil on hind tibiæ of ♂; fore wings even, 12 veins, no accessory cell; 3 and 4 from angle, 6 separate from 7, 10 on 9, 11 from cell; hind wings 8 veins, 3 and 4 from a point or short stemmed, 6 and 7 stemmed, 8 separated from cell.

Species.—*A. mimosaria* Gn.

A. bistrisaria Hüb. (brunnearia Pack.)

A. cerata Fab.

10. **ANAPLODES** Pack.

Geom. Moths, 392, 1876.

Type *pistacearia* Pack.

Palpi moderate, ascending, rather strong; clypeus untufted; antennæ bipectinated in ♂, ciliate in ♀; thorax and abdomen untufted; fore tibiæ unarmed; hind tibiæ with two pairs of spurs in both sexes, in ♂ not swollen and without hair pencil; fore wings 12 veins, 3 and 4 separate, 6 separate, 10 on 9, 11 from cell; hind wings 8 veins, 3 and 4 from angle, 6 and 7 stemmed, 8 separate from cell.

Differs from *Aplodes* principally in lack of hair pencil on hind tibiæ of ♂; from *Geometra* in that the antennæ of ♂ are not bipectinate to apex. So far as the description goes, *Megalachlora* Meyr. is a synonym. Differs also from *Pseudoterpna* in that the abdomen is not tufted.

Species:—

A. zygataria Hulst.*A. viridicaria* Hulst.*A. festaria* Hulst.*A. pistacearia* Pack.*A. junctolinearia* Graef. [Auct.]*A. remotaria* Wlk. (*iridaria**A. iridaria* Guen. (*rectaria* Grt.)*A. illustraria* Hulst.**BREPHINÆ.**

The Brephinae have in the past very generally been catalogued with the Noctuina, but were recognized to be a connecting link between that family and the Geometrina. Mr. Meyrick was, I believe, the first to regard them as true Geometers, and I myself have the same opinion. There are some Noctuid tendencies, and in many respects the two families are nearly related, but the Geometrid relations seem to me to be the nearer and more decisive.

Mr. Meyrick catalogues these insects under the term *Monocteniidæ*. The family designation *Brephidæ* has priority, however, if indeed the two groups should be joined in one family.

As said heretofore I can see no valid reason why certain genera such as *Alsophila*, etc., where vein 8 of the hind wings is coincident with the cell, should be referred to this family, as is done by Mr. Meyrick. They belong more properly to the *Hydriomeninæ*.

Synopsis of **BREPHINÆ.**

Antennæ of ♂ bipectinate **Leucobrephos.**
 Antennæ of ♂ dentate **Brephos.**

BREPHOS Ochs.

Schm. Eur. 1816 (*Brephos* Hüb., Tentamen 1810).

Type *parthenias* L.

Archiearis Hüb., Verz. 279, 1818, type *parthenias* L.

Palpi short, covered with long hairs; face clothed with long loose hairs; antennæ simple, rounded, finely pubescent; thorax scaly, mixed with hairs, the patagiæ long haired. Abdomen scaled, mixed with hairs. Legs, femora and tibiæ haired, hind tibiæ with two pairs of spurs, fore tibiæ unarmed; fore wings 11 veins, one accessory cell, 7 absent, 3 and 4 widely separate, 5 at middle of cell; hind wings 8 veins, 3 and 4 separate, 5 at middle of cell, 6 and 7 stemmed, 8 separate from cell and subparallel with it.

Species.—*B. infans* Moesch.

LEUCOBREPHOS Grt.

Buff. Bull. ii, 53, 1874.

Type *brephoides* Walk.

Palpi moderate, very lengthily hairy; face hairy; antennæ bipectinate in ♂; thorax and abdomen heavily haired, untufted; fore wings 11 veins, 3 and 4 stemmed, one accessory cell; hind wings 8 veins, 3 and 4 stemmed, 8 separate from cell and subparallel with it.

Species.—*L. brephoides* Wlk.

L. middendorfi Men.

LEUCULIDÆ.

The only genus is the typical one which follows. The venation is peculiar, and I am doubtful whether the species belongs to the Geometrina. It has a decidedly Lithosiid aspect, and its true position cannot be determined until the larva is known.

LEUCULA Guen.

Phal. i, 134, 1857.

Type *empusaria* Guen.

Palpi very minute; clypeus flat, scaled; antennæ of ♂ bipectinate; thorax and abdomen untufted; fore tibiæ unarmed; hind tibiæ with two pairs of spurs; fore wings elongate, even, 12 veins, no accessory cell, 3 and 4 widely separate, 5 nearer 4 than 6, 6 from cell near 7, 7 and 8 stemmed from point of cell, 9 and 10 stemmed; hind wings rounded, 3 and 4 widely separate, 5 below middle, 6 and 7 stemmed, 8 separate from cell, but close to it to end.

The generic description is from *L. lacteolata*. I do not know the type of the genus.

Species.—*L. lacteolata* Hulst.

ENNOMIDÆ.

FERNALDELLINÆ.

This subfamily erected for, and containing the typical genus only, is a very peculiar one in apparent affinities. In not having vein 5 of the hind wings developed, it is placed with the Ennomidæ as I have defined that family. The structure of the hind wing in the coalescing of vein 8 with the cell at base is exactly that of the Hydriomeninæ. There exists also the comparatively rare peculiarities of the prominent tubercle of the clypeus, the clawing of the fore tibiæ and the bipectinate antennæ of the ♀. The vestiture of the head and thorax is the squamose hairy and scale hairy vestiture of the Arctic Hydriomeninæ, and the coloration approaches most nearly certain genera of the Ennominae.

FERNALDELLA n. gen.

Type *finetaria* Grt.

Palpi moderate, slender, with long scales at base, clypeus having a rounded protuberance with a hollow within, with central roughened raised space; tongue developed; antennæ bipectinated in both sexes; fore tibiæ with a strong terminal frontal claw, the tibiæ themselves very short and stout; hind tibiæ with two pairs of spurs; fore wings 11 veins, 6 from a point with 7, 8 wanting, 10 from 9, 11 from cell; hind wings 7 veins, 3 and 4 separate, 5 wanting in ♂; weak, not tubular in ♀; 6 and 7 stemmed, anastomosing with cell more than one-half its length in ♂, not quite one-half in ♀.

I take great pleasure in dedicating this genus to Dr. C. H. Fernald, of Amherst, Mass., whose ability as an entomologist and worth as a man, command, second to no other, my admiration and respect.

Species.—*F. finetaria* Grt.

F. stalachtaria Streck.

ENNOMINÆ.

The Ennominae are the largest of the subfamilies of the Geometrina of our fauna. There is among them, moreover, the widest variation in appearance and structure, and they offer the greatest difficulties in classification.

The subfamily divides into two groups by the possessing or lacking a peculiar fovea on fore wings beneath near the base of vein 1*a* in the male. It is ordinarily easy to be seen, though there is difficulty

in some cases, where the peculiarity seems to be in the process of development, or where perhaps the species is outgrowing it. Sometimes it is large and prominent, consisting of an unscaled vitreous surface, at times with a peculiar gland within it.

There is wide variation in the structure of the antennæ not only in that bipectinate, lamellate, fascicled, ciliate, filiform and flattened forms are found, but also in the location of the various appendages. In many species the pectinations are at the summits, in others at the bases of the segments. The rule is not invariable, but generally the species having the fovea on the fore wings of the males, have also the pectinations or fascicles on the top of the segments of the antennæ.

Apart from the elements of structure upon which the subfamily is founded, there is among the species a very wide range of variation. The palpi, clypeus, antennæ, legs, thorax, abdomen and wings vary greatly; especially is the venation subject to variation not only in the different species, but in the individual species. In view of this, in the main, very little dependence can be placed upon the relations of veins 9, 10, 11 and 12 to each other in the fore wings. Not infrequently an extra vein (vein 13) is found, and very frequently 11 is present or absent in different specimens of the same species; 9, 10, 11 and 12 anastomose with each other, or are separate in the individuals of one species, and as a consequence very little use can be made of them in classification. The position of the bases of the veins are much less variable. The hind wings are less changeable in venation than the fore wings, but the comparative positions of 3 and 4, as well as 6 and 7, cannot be relied upon within narrow limits.

Synopsis of Genera.

1. Fore wings of ♂ with fovea below at base of 1a.....2.
- Fore wings of ♂ without fovea below at base of 1a.....36.
2. Antennæ of ♂ bipectinate.....3.
- Antennæ of ♂ not bipectinate.....30.
3. Tongue absent, or very short.....4.
- Tongue developed, at least one-half thorax.....5.
4. Hind tibiæ with one pair of spurs.....63. **Nacophora**.
- Hind tibiæ with two pairs of spurs.....34. **Amilapis**.
5. Fore wings with discal scale tuft.....44. **Tornos**.
- Fore wings without discal scale tuft.....6.
6. Clypeus tubercled.....7.
- Clypeus not tubercled.....11.
7. Fore tibiæ clawed.....8.
- Fore tibiæ not clawed.....49. **Cœnocharis**.

8. Hind tibiæ with one pair of spurs9.
Hind wings with two pairs of spurs.....10.
9. Fore wings 11 veins.....46. **Synglochis**.
Fore wings 12 veins.....48. **Holochroa**.
10. Fore tibiæ rounded, with one claw at end.....47. **Glaucina**.
Fore tibiæ flattened, with two claws at end.....70. **Acanthophora**.
11. Antennæ of ♀ bipectinate12.
Antennæ of ♀ not bipectinate13.
12. Fore wings 11 veins.....40. **Pterotaen**.
Fore wings 12 veins.....39. **Meris**.
13. Hind wings 6 and 7 stemmed.....16. **Nyctiphanta**.
Hind wings 6 and 7 separate.....14.
14. Abdomen of ♂ with dorsal tuft on first and third segments.
.....43. **Somatalophia**.
Abdomen of ♂ without dorsal tuft on first and third segments.....15.
15. Thorax with anterior and posterior tufts36. **Spodolepis**.
Thorax without anterior and posterior tufts.....16.
16. Fore wings of ♀ with fovea below at base.....17.
Fore wings of ♀ without fovea below at base.....18.
17. Hind tibiæ of ♂ with hair pencil.....59. **Glena**.
Hind tibiæ of ♂ without hair pencil8. **Physostegania**.
18. Clypeus roughened and pitted.....71. **Tracheops**.
Clypeus smooth.....19.
19. Hind tibiæ of ♂ with hair pencil.....20.
Hind tibiæ of ♂ without hair pencil.....24.
20. Palpi erect, recurved.....21.
Palpi not erect, not recurved22.
21. Wings even, rounded.....75. **Stergamataen**.
Wings angulate, incised.....38. **Lyttosis**.
22. Wings deeply incised.....37. **Stenotrachelys**.
Wings not deeply incised.....23.
23. Antennæ of ♂ with pectinations suddenly shortening to simple apex.
.....55. **Cleora**.
Antennæ of ♂ with pectinations gradually shortening to simple apex.
.....33. **Aleis**.
24. Palpi long.....25.
Palpi moderate26.
25. Hind wings with subcostal fovea below near base in ♂26. **Enemera**.
Hind wings without subcostal fovea below near base in ♂20. **Sympherta**.
26. Antennæ of ♂ bipectinate to apex.....32. **Nepytiæ**.
Antennæ of ♂ with apex simple.....27.
27. Hind wings quite strongly angulate.....35. **Paraphia**.
Hind wings not strongly angulate28.
28. Wings very broad; hind wings scalloped60. **Epimecis**.
Wings moderate; hind wings even, or at most slightly wavy.....29.
29. Antennæ plumose; pectinations long.....53. **Selidosema**.
Antennæ not plumose; pectinations moderate or short.....15. **Diastictis**.
30. Antennæ of ♂ with fascicles of hairs on each segment.....31.
Antennæ of ♂ without fascicles of hairs on each segment.....32.

31. Hind tibiæ of ♂ with hair pencil.....57. **Aethaloptera**.
Hind tibiæ of ♂ without hair pencil.....59. **Ectropis**.
32. Hind tibiæ of ♂ with hair pencil.....33.
Hind tibiæ of ♂ without hair pencil.....13. **Philobia**.
33. Antennæ of ♂ dentate.....14. **Macaria**.
Antennæ of ♂ not dentate.....34.
34. Antennæ of ♂ flattened, naked35.
Antennæ of ♂ filiform ciliate.....12. **Sciagraphia**.
35. Thorax hairy30. **Enyphia**.
Thorax scaly.....9. **Gueneria**.
36. Antennæ of ♂ bipectinate37.
Antennæ of ♂ not bipectinate.....89.
37. Wings of ♀ partly obsolete.....38.
Wings of ♀ developed.....39.
38. Segments of abdomen spined.....65. **Raphididemus**.
Segments of abdomen not spined.....64. **Apocheima**.
39. Antennæ of ♂ doubly bipectinate83. **Ripula**.
Antennæ of ♂ not doubly bipectinate.....40.
40. Hind wings of ♂ with subcostal fovea below at base.....41.
Hind wings of ♂ without subcostal fovea below at base.....44.
41. Palpi long, beak like.....25. **Catopyrrha**.
Palpi moderate or short42.
42. Abdomen of ♂ with lateral tuft.....42. **Spodoptera**.
Abdomen of ♂ without lateral tuft.....43.
43. Hind wings of ♂ with fold on inner margin above near base...41. **Ixala**.
Hind wings of ♂ without fold.....10. **Deilinia**.
44. Fore tibiæ clawed18. **Euaspidates**.
Fore tibiæ not clawed.....45.
45. Tongue absent, or very short46.
Tongue developed, at least one-half thorax.....54.
46. Palpi of ♂ very long, deltoid like.....68. **Eucaterva**.
Palpi of ♂ not long, deltoid like47.
47. Antennæ of ♂ bipectinate to apex.....48.
Antennæ of ♂ with apex simple.....53.
48. Antennæ of ♀ bipectinate49.
Antennæ of ♀ not bipectinate51.
49. Thorax hairy.....50.
Thorax scaly.....69. **Philtrea**.
50. Abdomen densely hairy, and with dorsal tufts.....67. **Phæoura**.
Abdomen scaly, without dorsal tufts84. **Ennomos**.
51. Front and thorax hairy.....52.
Front and thorax scaly51. **Aethalodes**.
52. Tongue short72. **Dyscia**.
Tongue obsolete.....50. **Coniodes**.
53. Abdomen and femora densely hairy.....61. **Lycia**.
Abdomen and femora scaly.....52. **Chesiadodes**.
54. Antennæ of ♀ bipectinate55.
Antennæ of ♀ not bipectinate60.
55. All wings 6 and 7 stemmed.....29. **Platea**.
Fore or hind wings 6 and 7 separate.....56.

56. Hind tibiæ of ♂ with hair pencil.....57.
 Hind tibiæ of ♂ without hair pencil.....58.
57. Palpi long, beak like94. **Pherne.**
 Palpi moderate or short78. **Neoterpes.**
58. All wings even, rounded45. **Exelis.**
 Hind wings at least notched or angulate.....59.
59. Hind wings notched between 4 and 6; fore wings 10 and 11 stemmed at base.
 85. **Xanthotype.**
 Hind wings angulate; fore wings 10 and 11 separate at base.87. **Hyperitis.**
60. Abdomen of ♂ with tufts beneath.....56. **Melanolophia.**
 Abdomen of ♂ without tufts beneath.....61.
61. Thorax with anterior longitudinal crest.....98. **Stenaspilates.**
 Thorax without longitudinal crest.....62.
62. Fore wings with chitinous cross bar between submedian and 1a.
 80. **Therina.**
 Fore wings without such cross bar63.
63. Antennæ of ♂ bipectinate to apex.....64.
 Antennæ of ♂ with apex simple66.
64. Fore wings with transparent lunule at end of discal cell91. **Selenia.**
 Fore wings without transparent lunule at end of discal cell.....65.
65. Wings hairy; antennæ with pectinations filiform; palpi short.67. **Cingilia.**
 Wings scaly; antennæ with pectinations clavate; palpi moderately long.
 89. **Gonodontis.**
66. Hind wings 6 and 7 stemmed.....67.
 Hind wings 6 and 7 separate.....68.
67. Thorax hairy.....79. **Sieya.**
 Thorax scaly.....76. **Melamea.**
68. Antennæ close together, the bases almost touching....74. **Sphæcelodes.**
 Antennæ normally separate69.
69. Femora and palpi densely hairy70.
 Femora and palpi not densely hairy.....72.
70. Fore wings 11 veins1. **Epelis.**
 Fore wings 12 veins.....71.
71. Antennæ of ♂ with pectinations filiform; front long haired.
 4. **Dasyfidonia.**
 Antennæ of ♂ with pectinations clavate; front not long haired.
97. **Snowia.**
72. Hind tibiæ of ♂ with hair pencil.....73.
 Hind tibiæ of ♂ without hair pencil.....80.
73. Palpi long.....74.
 Palpi moderate or short75.
74. Antennæ of ♂ pectinations filiform.....7. **Choraspilates.**
 Antennæ of ♂ pectinations clavate.....6. **Mellilla.**
75. Wings even, rounded76.
 Wings angulate.....78.
76. Antennæ of ♂ plumose; pectinations filiform.....2. **Eufidonia.**
 Antennæ of ♂ not plumose; pectinations clavate.....77.
77. Front with overhanging scale tuft; fore wings 12 separate..31. **Philedia.**
 Front without overhanging tuft; fore wings 12 anastomosing with 11.
 27. **Caripeta.**

78. Larva with 12 legs.....81. **Metrocampa.**
 Larva with 10 legs.....79.
79. Antennæ of ♂ with pectinations very short, each with a fascicle of hairs.
 106. **Abbottana.**
 Antennæ of ♂ with pectinations not very short and without fascicle of hairs.
 90. **Euchlæna.**
80. Palpi long, beak like.....81.
 Palpi moderate or short, at least not beak like.....82.
81. Wings strongly angulate.....92. **Epiplatymetra.**
 Wings slightly, or not at all angulate.....73. **Lychnosea.**
82. All wings more or less rounded out above posterior angle...86. **Plagodis.**
 All wings not so rounded out.....83.
83. Wings even, rounded or slightly wavy.....84.
 Wings not even rounded; angulate, or strongly wavy.....88.
84. Fore wings 10 stemmed with 11 at base.....85.
 Fore wings 10 separate from 11.....86.
85. Fore wings falcate.....101. **Syssaura.**
 Fore wings not falcate.....102. **Caberodes.**
86. Antennæ with pectinations filiform.....87.
 Antennæ with pectinations clavate.....54. **Mericeisca.**
87. Palpi quite long, ascending; front tufted.....77. **Anagoga.**
 Palpi short, porrect; front smooth.....23. **Aethyctera.**
88. Hind wings with wavy margins; fore wings 10 on 9; pectinations of antennæ
 clavate.....96. **Pryocycla.**
 Hind wings angulate.....95. **Metanema.**
89. Wings of ♀ obsolete.....66. **Erannis.**
 Wings of ♀ developed.....90.
90. Fore wings 16 rounded up near base.....11. **Episemasia.**
 Fore wings 16 not rounded up near base.....91.
91. Hind legs of ♂ with tuft of hairs at end of femora..21. **Homochlodes.**
 Hind legs of ♂ without tuft of hairs at end of femora.....92.
92. Thorax with dorsal longitudinal crest.....93.
 Thorax without dorsal longitudinal crest.....94.
93. Antennæ of ♂ dentate.....99. **Marmarea.**
 Antennæ of ♂ simple, flattened.....100. **Azelina.**
94. Hind tibiæ of ♂ with hair pencil.....95.
 Hind tibiæ of ♂ without hair pencil.....102.
95. Fore wings 11 veins.....96.
 Fore wings 12 veins.....97.
96. Wings even, spurs normal on hind tibiæ.....5. **Meliomata.**
 Wings angulate; one upper spur on hind tibiæ much enlarged at end.
 88. **Ania.**
97. Antennæ of ♂ dentate.....104. **Tetracis.**
 Antennæ of ♂ not dentate.....98.
98. Antennæ of ♂ flattened.....99.
 Antennæ of ♂ filiform.....103. **Oxydia.**
99. Thorax hairy.....100.
 Thorax scaly.....101.

100. Wings angulate.....105. **Sabulodes.**
 Wings even, rounded19. **Anthelia.**
 101. Wings angulate.....82. **Eugonobapta.**
 Wings even, rounded22. **Thallophaga.**
 102. Palpi rather long.....103.
 Palpi quite short.....104.
 103. Wings angulate; antennæ of ♂ dentate.....93. **Synaxis.**
 Wings rounded; antennæ of ♂ not dentate.....17. **Apolema.**
 104. Thorax hairy28. **Phengommataea.**
 Thorax scaly105.
 105. Antennæ of ♂ flattened24. **Apæcasia.**
 Antennæ of ♂ filiform3. **Orthofidonia.**

1. **EPELIS** n. gen.

Type *truncataria* Wlk.

Palpi rather long, slender, porrect, loosely hairy; front with conical tuft; tongue developed; antennæ of ♂ bipectinate, apex simple, of ♀ filiform; thorax loosely scale hairy above and hairy below. Abdomen rather rough scaled; fore legs, femora strongly haired; hind tibiæ swollen in ♂, without hair pencil, with all spurs; fore wings 11 veins, 5 weak, scarcely tubular, 6 and 7 separate, 11 wanting, 10 from cell without fovea in ♂; hind wings veins all separate, 8 separate from cell; all wings even, rounded.

Distinguished by the 11 veined primaries, and the hairy scaled palpi, front, thorax and femora.

✓Species.—*E. truncataria* Wlk.

(*E. faxonii* Minot.

2. **EUFIDONIA** Pack.

Geom. Moths, 225, 1876.

Type *notataria* Walk.

Palpi short, porrect, long scaled below; tongue strong; front smooth; antennæ bipectinate in ♂, apex simple, pectinations filiform; thorax and abdomen smooth; hind tibiæ swollen, with hair pencil in ♂, with all spurs present; fore wings even, rounded, 12 veins, 10 and 11 from cell, without fovea in ♂; hind wings even, rounded, 5 undeveloped, 8 separate from cell.

Species.—*E. notataria*.

3. **ORTHOFIDONIA** Pack.

Geom. Moths, 235, 1876.

Type *exornata* Wlk.

Palpi subascending, rounded, loose bushy scaled, moderate; tongue developed; front loose scaled; thorax and abdomen rather loosely

scaled; antennæ filiform, ciliate, the hairs rather long; hind tibiæ not swollen, without hair pencil, with two pairs of spurs in both sexes; fore wings 12 veins, without fovea at base, 10 on 11 anastomosing with 12; hind wings veins all separate; all wings even, rounded.

Species.—*O. exornata* Wlk.

O. semiclarata Walk.

O. vestaliata Guen.

4. **DASYFIDONIA** Pack.

Geom. Moths, 233, 1876.

Type *avuncularia* Guen.

Palpi rather long, porrect, densely long hairy; antennæ of ♂ bipectinate, of ♀ filiform, the pectinations of ♂ filiform; front and thorax above and below densely long hairy; abdomen scaled, smooth; legs with femora densely hairy; hind tibiæ with two pairs of spurs in both sexes, without hair pencil in ♂; fore wings 12 veins, with fovea at base, 10 on 11, 11 from cell; hind wings veins all separate, 5 undeveloped, 8 separate from cell.

Species.—*D. avuncularia* Guen.

5. **HELIOMATA** Grt.

Proc. Ent. Soc. Phil. vi, 29, 1866.

Type *ifulata* Grt.

Palpi short, porrect, rather heavily scaled below; front rough scaled, flat; antennæ of ♂ filiform, ciliate; hind tibiæ of ♂ swollen, with hair pencil, with all spurs; fore wings even, rounded, 11 veins, 10 on cell, 11 wanting, without fovea in ♂; hind wings even, rounded, 8 separate from cell, 6 and 7 separate, 5 undeveloped.

Species.—*H. ifulata* Grt.

H. cycladata Grt.

H. elaborata Grt.

6. **MELLILLA** Grt.

Buff. Bull. i, 12, 1873.

Type *chamæchrysaria* Grt.

Gonilythria Gump. Nov. Act. Halle, 49, 323, 18, type *chamæchrysaria* Grt.

Palpi long, heavy, subascending, end member very small, deflexed; front with conical tuft; antennæ bipectinate in ♂, pectinations claviform, segments comparatively few; thorax and abdomen smooth; hind tibiæ of ♂ swollen, with hair pencil, with all spurs; fore wings

12 veins, without fovea below, 10 and 11 from one stem from cell; hind wings veins all separate, 8 separate from cell, 5 undeveloped; all wings even, rounded.

Peculiar in the fewness of the segments of the antennæ, these being not more than about one-half the usual number. The genus is structurally very close to *Chloraspilates* Pack., which it antedates.

Species.—*M. inextricata* Walk.

✓ *M. chamæchrysaria* Grt.

7. **CHORASPIlates** Pack.

Geom. Moths, 211, 1876.

Type *bicoloraria* Pack.

Palpi moderately long, subascending, hairy, heavily scaled; tongue developed; front with a strong hair tuft; antennæ broadly pectinated almost to apex in ♂; thorax loosely scaled above, hairy or woolly below; abdomen smooth; legs smooth, hind tibiæ not swollen, without hair pencil, with two pairs of spurs in both sexes; fore wings without fovea in ♂, 12 veins, 10 from 9, 11 from cell; hind wings all veins separate, 5 undeveloped, 8 separate from cell.

Close to *Mellilla* Grt.; the antennæ of ♂, however, have the pectinations filiform, and the segments shorter and more numerous.

Species.—✓ *C. bicoloraria* Pack.

8. **PHYSOSTEGANIA** Warr.

Nov. Zool. i, 406, 1894.

Type *pustularia* Guen.

Palpi rather long, porrect, rather heavily scaled; tongue developed; front scale tufted; antennæ of ♂ bipectinate, apex simple, of ♀ serrate; thorax and abdomen scaled, the latter slightly tufted at end; hind tibiæ somewhat swollen, without hair pencil in ♂, with all spurs; fore wings even, rounded, with very large fovea below in ♂ near base, a smaller one in ♀, 11 veins, probably sometimes 12; hind wings, 5 undeveloped, 6 and 7 separate, 8 separate from cell, the wings even, rounded.

Species.—✓ *P. pustularia* Guen.

9. **GUENERIA** Pack.

Geom. Moths, 307, 1876.

Type *basilaria* Walk.

Palpi short, porrect; front smooth; antennæ of ♂ flattened, nearly naked; thorax and abdomen smooth, the latter somewhat tufted at end; hind tibiæ with all spurs in ♂, with hair pencil, and

with the tarsi much shortened; fore wings even, rounded, 12 veins, 10 from 9, 11 from cell, with large fovea at base; hind wings rounded, 6 and 7 separate, 8 separate from cell and without fovea at base, 5 undeveloped.

Differs from *Macaria* in the simple flattened antennæ, the antennæ being dentate in *Macaria*.

Species.—*G. basiararia* Walk.

10. **DEILINIA** Hüb.

Verz. 310, 1818 (*Sphecodes* Hüb. Tentamen).

Type *pusaria* Linn.

Cabera Treits., Schm. Eur. vi. 1, 343, 1827, type *pusaria* Linn.

Palpi short, porrect, rough scaled below; tongue developed; front smooth; antennæ of ♂ bipectinate, apex simple, of ♀ dentate; thorax and abdomen smooth; hind tibiæ of ♂ not swollen or slightly so, without hair pencil, with all spurs; fore wings 12 veins, without fovea below, 10 from 9; hind wings, 5 undeveloped, 8 separate from cell, in ♂ with fovea at base of vein 8.

Species:—

<i>D. borealis</i> Hulst, n. sp.	/ <i>D. falcataria</i> Pack.
<i>D. elimata</i> Hulst.	<i>D. carnearia</i> Hulst.
<i>D. quadrifasciaria</i> Pack.	<i>D. perpallidaria</i> Grt.
/ <i>D. variolaria</i> Guen.	/ <i>D. quadraria</i> Grt.
/ <i>D. erythremaria</i> Guen.	<i>D. litaria</i> Hulst.
<i>D. exanthemata</i> Scop.	<i>D. liberaria</i> Walk.
<i>D. pacificaria</i> Pack.	<i>D. nigroseriata</i> Pack.
<i>D. nevadaria</i> Hulst.	/ <i>D. behrensaria</i> Hulst.
<i>D. fæminaria</i> Guen.	<i>D. fumosa</i> Hulst, n. sp.

Dr. Butler tells us he has received the true *D. exanthemata* from Canada. *D. falcataria*, *D. carnearia* and *perpallidaria* are probably conspecific. The species of the genus differ in appearance, but agree in structure.

D. borealis n. sp.—Expands 25 mm. Palpi whitish at base, blackish at ends; front blackish gray; antennæ gray, ringed with black; thorax blackish gray. Abdomen whitish, thickly irrorated with black atoms. Wings light gray, thickly and evenly spattered with blackish scales to beyond cell, then somewhat darkened into an even, broad, indistinct line, followed by a lighter band of about the same width, then darker again to outer margin, the wings here being washed with fuscous, and all wings having a general dull gray appearance, darker at outer line and on outer spaces; beneath gray with black atoms, but not so much darkened as above, and of an even color over all the wings. In the ♀ the black

atoms within the outer space are not so dense, and the color is therefore of a much lighter gray. at the same time the darker margin is not so broad.

Male and female, Calgary, Canada, from Mr. Wolly-Dod.

D. fumosa n. sp.—Expands 35–40 mm. Antennæ long, plumose, dark fuscous; palpi fuscous brown; head fuscous; thorax and abdomen fuscous brown, the thorax darker and stained anteriorly with violet. Wings fuscous brown with a violet tint, the outer field in both wings considerably lighter than the rest, which is evenly colored; basal line black, not distinct on dark field, sharply and evenly rounded; a dark line across the wing at center of middle field, indistinct, somewhat rounded, extending across hind wing: outer line obsolete, its place showing by the contrast of the color of middle and outer fields; this edge distinct, sinuous, bending out at 5, bending out again between 3 and 4, between 1 and 2 turning in again to margin; an indistinct broken line in middle of outer field parallel with outer margin inwardly shown by blackish, outwardly by whitish scales; hind wings with edging continued, undulate; a black apical dash on fore wings with reddish brown tint about it; hind wings becoming reddish brown towards outer margin: discal spots on fore wings white; beneath quite even brownish with ocher tint, lines very faint or obsolete; discal spots on all wings black.

Colorado, Utah, California. Near to *Gnophos haydenata* Pack., and considerably like it in appearance. Faded specimens show the cross-lines more sharply, the outer field comparatively lighter and lose most, if not all, of the violet-brown tinge. The line in outer field shows across both wings in dark dots.

11. **EPISEMASIA** n. gen.

Type *cervinaria* Pack.

Palpi short, porrect; tongue developed; front smooth; antennæ flattened in ♂, filiform in ♀; thorax and abdomen smooth; legs smooth; hind tibiæ with two pairs of spurs, swollen and without hair pencil in ♂; fore wings 12 veins, 5 very weak, not tubular, 1*b* bent upward and rounded just beyond base, 6 and 7 widely separate, 10 on 8, 11 from cell; hind wings, 5 undeveloped, 8 separate from cell.

The special distinction is the curving of vein 1*b* of fore wings, which takes the form of being parallel with submedian, and then turning away from it an angle. It is caused by an incomplete fovea posterior to 1*b*.

Species.—*E. morbosa* Hulst, n. sp.

E. cervinaria Pack.

E. morbosa n. sp.—Expands 26 mm. Palpi ochreous; front ochreous, tinged with fuscous; thorax and abdomen ocher fuscous, the latter spotted with dark atoms towards end. Wings even, dull ocher, or pale buff, spotted quite evenly, but irregularly all over with small blackish blotches and blackish atoms;

discal spots black; margin with intervenular black dots; wings beneath quite as above, with a shade lighter color and less distinctness to the blackish spottings.

One ♂, Florida.

12. **SCIAGRAPHIA** n. gen.

Type *granitata* Guen.

Palpi moderate, porrect or subascending, generally strongly scaled, tongue strong; front rounded, rather broad, smooth or slightly tufted; antennæ of ♂ filiform or slightly flattened, ciliate or subfasciculate; thorax and abdomen smoothly scaled; hind tibiæ of ♂ swollen, with hair pencil, tarsi somewhat shortened; fore wings even, or slightly falcate, with fovea below in ♂, 12 veins, 10 on 9, 11 from cell, 5 weak; hind wings even, slightly wavy, rarely subangulate on outer margin, 5 undeveloped, 6 and 7 separate, 8 separate from cell.

This genus differs from *Macara* Curt., *Philobia* Dup. and *Diasictis* Hub. in form of the antennæ, and from *Opisthograptis* Hüb. in the presence of the hair pencil on the hind tibiæ of the ♂.

Species:—

S. sublacteolata Hulst.

S. colorata Grt.

S. maculifascia Hulst, n. sp.

S. granitata Guen.

S. denticulata Grt.

S. muscaria Guen.

S. punctolineata Pack.

S. heliothidata Guen.

S. californiata Pack.

S. respersata Hulst.

S. nubiculata Pack.

S. irrorata Pack.

S. neptata Guen.

S. hebitata Hulst.

S. sinuata Pack.

S. snoviata Pack.

S. pervoluta Hulst.

S. meadii Pack.

S. continuata Walk.

S. mellistrigata Grt.

S. trifasciata Pack.

S. atrofasciata Pack.

S. subminiata Pack.

A number of these species run very closely together, and some modification of specific standing may have to be made as more material is obtained for comparison.

S. maculifascia n. sp.—Expands 26–28 mm. Very close to *S. sublacteolata* Hulst, of which it is quite likely a variety. The markings are the same, the outer line of dots arranged in the same manner, but it differs very decidedly in the general color of the wings, the neatly pure white of *S. sublacteolata* being replaced by dark fuscous.

I have specimens of *S. sublacteolata* from Ohio and Texas which agree. All my specimens of *S. maculifascia* are from South Dacotah and also agree with one another.

13. **PHILOBIA** Dup.

Hist. Nat. vii, 195, 1829.

Type *notata* Linn.

Palpi moderate, subascending, end member horizontal; tongue developed; front with conical tuft of hairs; antennæ of ♂ dentate with fascicle of hairs on each segment; thorax and abdomen smooth; hind tibiæ of ♂ swollen, without hair pencil, with all spurs present; fore wings slightly angled on outer margin, 12 veins, 10 on 9, 11 from cell, with fovea below in ♂; hind wings strongly angled on outer margin, 8 separate from cell, 6 and 7 separate, 5 undeveloped.

I cannot separate some of our specimens from *notata* Linn. There are others from the southwest, to which the name *enotata* may apply, which seem to have the outer line of the fore wings less bent below costa and the antennæ of the ♂ more deeply serrate. They are also darker brown in color.

Species. — *P. notata* Linn.*P. enotata* Linn.14. **MACARIA** Curt.

Brit. Ent. iii, 132, 1826.

Type *liturata* Clerck.

Palpi moderate or short, porrect, rough scaled; tongue developed; front smooth, or with slight tuft; antennæ of ♂ serrate, ciliate, or subfasciculate; thorax scaled. Abdomen sometimes somewhat tufted at end; hind tibiæ of ♂ lengthened, swollen, with hair pencil, tarsi shortened; fore wings even, or slightly falcate, with fovea below in ♂, 12 veins or 11, the number being variable in the same species, vein 11 having a tendency to become obsolete; hind wings even, rounded, sometimes wavy, or even angulate on outer margin, 5 undeveloped, 6 and 7 separate, 8 separate from cell.

Aestimaria Hüb., the type of *Pharmacis* Hüb. and *Gonodela* Bois. has slightly serrate antennæ in ♂, but lacks the hair pencil. *Opisthograptis* Hüb. and *Rumia* Dup., of which *luteolata* Linn. is the type, have neither serrate antennæ nor hair pencil in ♂. *Psamatodes* Guen. is a synonym of *Macaria* if *eremiata* Guen. be the type.

It can, however, be referred to *catalaunaria* Guen. as type, which Guenée says has pectinated antennæ, but which species I have not myself examined.

Species :—

<i>M. infimata</i> Guen.	<i>M. grassata</i> Hulst.
<i>M. s-signata</i> Pack. <i>Tephrosia</i>	<i>M. preatomata</i> Harv.
<i>M. eremiata</i> Guen.	<i>M. similata</i> Hulst.
<i>M. hypæthrata</i> Grt.	<i>M. mendicata</i> Hulst.
<i>M. æquiferaria</i> Walk.	<i>M. septemfluaria</i> Grt.
<i>M. dispuncta</i> Walk.	<i>M. glomeraria</i> Grt.
<i>M. minorata</i> Pack.	

15. **DIASICTIS** Hüb.

Verz. 288, 1818.

Type *artesiaria* Fab.*Itama* Hüb., Verz. 299, 1818, type *vincularia* Hüb.*Rhyparia* Hüb., Verz. 305, 1818, type *melanaria* L.*Dryocetis* Hüb., Verz. 316, 1818, type *roboraria* Schiff.*Speranza* Curt., Brit. Ent. v, 222, 1825, type *brunneata* Thun.*Grammatophora* Steph., Cat. 126, 1829, type *wavaria* L.*Halía* Dup., Hist. Nat. vii, 537, 1829, type *wavaria* L.*Siona* Dup., Hist. Nat. viii, 537, 1829, type *murinaria* Fab.*Thamnonoma* Led., Zool. Bot. Ges. Wien, 232, 1853, type *vincularia* Hüb.*Tephrosia* Guen., Phal. ii, 96, 1857, type *vincularia* Hüb.*Eufitchia* Pack., Geom. Moths, 247, 1876, type *ribearia* Fitch.*Catantictis* Gump., Nov. Act. Halle 49, 329 and 370, 1887, type *ribearia* Fitch.

Palpi moderate or short; tongue developed; front smooth, or somewhat tufted; antennæ of ♂ bipectinate, apex simple, the pectinations gradually growing less towards simple apex, often clavate, generally moderate or short, not plumose, of ♀ serrate or filiform; thorax scaly, rarely somewhat tufted, somewhat hairy below. Abdomen scaled; hind tibiæ often swollen, but without hair pencil in ♂, with all spurs; fore wings even, 12 or 11 veins in the same species, with fovea below in ♂; hind wings rounded, even, or slightly wavy, 5 undeveloped, 6 and 7 separate, 8 separate from cell.

Species :—

<i>D. ribearia</i> Fitch.	<i>D. helena</i> Hulst, n. sp.
<i>D. sulphuraria</i> Pack.	<i>D. inceptata</i> Walk.
<i>D. fascioferaria</i> Hulst.	<i>D. evagariu</i> Hulst.
<i>D. occiduaria</i> Pack.	<i>D. gausaparia</i> Grt.
<i>D. quadrifasciaria</i> Pack.	<i>D. subcessaria</i> Walk.
<i>D. flavicaria</i> Pack.	<i>D. packardaria</i> Moesch.
<i>D. gracilior</i> Butl.	<i>D. bitactuta</i> Walk.
<i>D. brunneata</i> Thun.	<i>D. wavaria</i> Linn.
<i>D. crocearia</i> Hulst.	<i>D. latiferrugata</i> Walk.
<i>D. ellu</i> Hulst, n. sp.	<i>D. graphidiaria</i> Hulst.
<i>D. speciosa</i> Hulst, n. sp.	<i>D. octolineata</i> Hulst.
<i>D. vagaria</i> Walk.	<i>D. decorata</i> Hulst, n. sp. <i>Tephrosia</i>

D. rectifascia Hulst, n. sp.
D. guenearia Pack.
D. tenebrosata Hulst.
D. subalbaria Hulst, n. sp.
D. minuta Hulst, n. sp.
D. crassata Hulst, n. sp.
D. florida Hulst, n. sp.
D. festiva Hulst.
D. deceptata Hulst, n. sp.
D. pullidula Hulst, n. sp.

D. subacuta Hulst, n. sp.
D. cinercola Hulst, n. sp.
D. umbrifasciata Hulst.
D. inquinaria Hulst.
D. denticulodes Hulst, n. sp.
D. festu Hulst, n. sp.
D. subfulcata Hulst, n. sp.
D. bicolorata Fab.
D. distribuaria Hüb.

D. ella n. sp.—Expands 32 mm. Palpi reddish ocher, yellowish at end; front ocher; thorax ocher reddish, stained anteriorly. Abdomen clay ocher; fore wings even, unbroken reddish orange; hind wings light ocher, washed with reddish orange outwardly, the color becoming strong towards and about anal angle; beneath yellow ocher, with a reddish orange tinge, less marked posteriorly on both wings. Legs concolorous.

Washington.

D. denticulodes n. sp.—Expands 32-36 mm. A species almost the exact counterpart of *Sciagraphia denticulata* Grt., in appearance, from some specimens of which I am not able to distinguish it by color or markings. It is, however, easily distinguished by the bipectinate antennæ of the ♂, and the sharply serrate antennæ of the ♀.

Male and female from Colorado.

D. speciosa n. sp.—Expands 37-38 mm. Palpi, front, thorax and abdomen rather dull ocher gray; fore wings gray, slightly ochreous, spotted with blackish scales, these being more frequent and giving a mottled appearance near the inner and beyond the outer lines: inner line not sharply defined, rather broad, wavy, dark fuscous; discal spot large, fuscous, oval, inclosing a spot of ground color; outer line not defined, broad, wavy, angulate, subparallel with outer margin; hind wings light ocher, striated outwardly with fuscous; beneath light ocher, the fore wings sometimes tinged with fuscous, and the discal spot and cross-lines faintly showing.

Hot Springs, New Mex., Mr. Meeske. I have the ♀ only, and the insect is probably not correctly placed here, as the thorax is much more woolly above and below than are the other species of the genus.

D. helena n. sp.—Expands 35 mm. Palpi yellow at base, smoky yellow outwardly; front smoky ocher; thorax smoky ochreous, washed with violet. Abdomen dull ocher. Wings rich reddish ocher, somewhat dotted and striated with brown; at the middle of the fore wings is a broad brown band, rather diffuse beginning one-fifth out from base on costa, evenly rounded outwardly to inner margin; ground color showing along costa and on outer margin of the band, the ground color making an entering broad angle about the subdiscal vein, almost severing the band; also an outward, submarginal, broad, brown band, straightly edged on inner side; hind wings with corresponding bands; beneath

the ground color less sharp, the bands almost obsolete, faintly showing from above and strongly marked only on inner edge near apex from costa to vein 6. Legs smoky yellow.

Brooklyn, N. Y. From Miss Helen Jackson, its discoverer, for whom it is named.

The type is a ♀, not in the best condition, and is so far as I know unique. It was taken on a window, being attracted to light in the thickly built up part of Brooklyn. I am suspicious that it may be an accidental importation from the Tropics. It has some resemblance to *D. abydata* Guen.

D. decorata n. sp.—Expands 35 mm. Palpi, front and antennæ dark ocher fuscous; thorax dark gray. Abdomen fuscous ocher, darker dorsally, becoming black on posterior part of each segment: fore wings bright, clear, very light gray, more or less overlaid with fuscous striations, the light color clearer on middle space and just beyond outer lines; basal line black, geminate, strong posteriorly; middle line black at costa, a shading across wing; outer line heavy, black, geminate, angled in opposite directions, and so more broadly separated below costa; marginal line black, broken; hind wings fuscous gray, two indistinct outer fuscous lines, more definite at inner margin; marginal line broken, black; all wings with lengthened black discal spots; hind wings slightly angulate at vein 4.

Platte Canon, Colorado, from Dr. Barnes.

D. rectifascia n. sp.—Expands 35 mm. Palpi and front fuscous gray; antennæ white, ringed with black; summit and thorax dull white, with a few blackish scales. Wings broad, dull white, slightly fuscous tinged, granular; outer line alone evident, fine dark fuscous, angled subcostally on fore wings, then straight across wing, parallel with margin, straight and faintly showing on hind wing; margins with faint intervenular black points; beneath as above, more glistering, lines wanting, discal spots of fore wings evident, black.

Washington, from Prof. Riley, taken by Mr. Koebele. The single specimen is a ♀.

D. crassata n. sp.—Expands 31 mm. Palpi ocher fuscous, front dark fuscous; thorax fuscous gray with a bluish tinge. Abdomen and all wings even light fuscous, rather evenly peppered with dark fuscous scales, slightly thicker on outer margin; outer line very faintly suggested; beneath same color, slightly more broken.

Colorado, from Prof. Gillette; one female only.

D. subalbaria n. sp.—Of the size and appearance of *Deilinia erythemaria* Guen. under which name it is probably in collections. The fore wings are not so rounded, have a more pointed apex, and are hardly so broad, but the resemblance is very decided. The wings are a dull white, with scattered dark specks, and the fore wings with an ochreous tinge on the anterior portion, especially towards base; along costa, especially basally, the dark atoms are thicker; below as above. The species is easily distinguished from *Deilinia erythemaria* by the antennæ of the ♂, as the pectinations are short and clavate: also the subcostal fovea at base of hind wings below is wanting.

Colorado.

D. minuta n. sp.—Expands 23–25 mm. Palpi and front fuscous ochreous to gray; summit generally gray, sometimes with ocher tint; thorax gray, or grayish fuscous. Abdomen fuscous, with an ocher tinge. Wings dirty fuscous gray, scales roughened, giving a sordid granular appearance, the fuscous shading more pronounced on the outer space, and the whole of the wings with irregularly scattered black scales; cross-lines three, indistinct or almost obsolete, to slightly darker fuscous across the wing, showing especially and distinctly in dark fuscous or black patches along costa; the first two are even, slightly rounded, the outer angulated outwardly at upper end of cell: the two outer are faintly continued on hind wings; discal spots annular, faint, diffuse; beneath clearer gray, with fuscous, or fuscous ocher blotches, becoming at times almost or quite solid, basally and on outer space; discal spots annular, more distinct than above, large.

Texas, Arizona. My specimens are all females.

D. florida n. sp.—Expands 26 mm. Palpi rather long, prominent, fuscous gray, with blackish intermixed; front strongly cone tufted, of the same color; thorax of same color, lighter gray posteriorly. Abdomen fuscous ocher; fore wings fuscous, with an ocher tinge to outer line, more blackish along costa; first two lines faint, the basal rounded, the second nearly straight, including the not prominent discal spot; outer line black, heavy, straight from costa near apex to the same distance within inner angle, edged outwardly with dull reddish brown; outer field fuscous, slightly ocher, margins black, wings subfalcate; hind wings fuscous gray, darker beyond line; the outer line present, blackish, quite distinct, bent anteriorly; marginal line blackish; beneath both wings fuscous ocher as fore wings above, the hind wings more brokenly; lines very faintly showing, outer space darker fuscous, discal points indistinct.

Florida.

D. deceptata n. sp.—Expands 31 mm. Palpi fuscous gray; front dark fuscous; thorax and abdomen fuscous gray, the latter somewhat ocher tinted; fore wings light gray, thickly overlaid with blackish scales, giving a broken dark gray color; basal space blackish at middle; basal line scarcely evident; middle line showing in broken darker patches; outer line in somewhat lengthened intervenular spots in a line parallel with margin, each spot preceded with a more or less distinct whitish spot; margin of intervenular black spots preceded by whitish; discal spots black, small; hind wings even fuscous, without cross-lines; discal spots obsolete; marginal line indistinct, dark fuscous; beneath dirty fuscous, slightly darker outwardly; discal spots of fore wings very faint.

New York, one female only.

D. pallidula n. sp.—Expands 25 mm. Light whitish ocher; fore wings crossed by three ocher lines, the first close to base, broad, rounded, angulate; the second just within middle of wing, broad, rounded, edges somewhat uneven; the outer with a fuscous tinge, narrow, running from costa to vein 6, following vein 6 outwardly at a sharp angle for a short distance, then turning sharply from it and continuing to inner margin parallel with outer edge, the line somewhat tremulous in its course; between veins 3 and 4 is a large broken black spot, divided by the outer line; hind wings, the three lines continued across the wings; discal spots dark, diffuse; beneath much as above, more fuscous, lines more in-

definite and less pronounced; fore wings much arched costally; hind wings wavy, produced, subangulate at vein 4.

Colorado.

D. subacuta n. sp.—Expands 26–28 mm. Palpi and front fuscous; thorax and abdomen fuscous ocher, the abdomen becoming dark fuscous dorsally after the first three segments; fore wings buff ocher, uniform, evenly scattered over with fuscous scales; cross-lines fuscous, nearly straight or slightly curved, parallel to each other, the middle one just within and touching the discal spot, the outer half way between the middle one and the outer margin; hind wings buff ocher lighter basally, with the two outer lines of fore wings continued; all discal spots present, black; all marginal lines broken, black; beneath color nearly as above, uniform, the outer line alone showing; discal spots distinct; marginal lines broken, black; fore wings slightly falcate in ♂; hind wings somewhat wavy in both sexes.

Colorado, Nevada.

D. cinereola n. sp.—Expands 30 mm. Palpi, front and thorax fuscous gray. Abdomen the same color, more fuscous towards end; fore wings light gray, with fine striations and powderings of fuscous gray, very even, clean and smooth in appearance, giving a gray, slightly bluish color; lines black, the basal faint, rounded, the outer not sharply defined, bent outward from costa, inward from beyond cell to vein 4, then nearly straight to inner margin, giving a gently evenly curved line, much as in *Macaria meudii*; hind wings even, light gray; all marginal lines black; beneath, fore wings colored much as above, with the cross-lines obsolete, the hind wings more heavily fuscous shaded and somewhat darker than the fore wings.

Colorado.

D. festa n. sp.—Expands 32 mm. Palpi, front and collar bright yellow ocher, slightly tinged with fuscous; thorax light gray, glaucous with a bluish shade. Abdomen light fuscous gray; fore wings subfalcate, light gray, bluish tinged, with scattered fuscous and blackish scales, more heavy outwardly, giving a general fuscous bluish gray color; lines three, faint, not easily discerned, fuscous in color; the first narrow, rounded; the second broader, more diffuse, rounded out from costa, nearly straight from middle of cell to inner margin; outer line evenly rounded out from costa and beyond cell at middle, parallel with outer margin, lightened up outwardly, and definitely marked with black points on each of the veins; all lines definite and blackish at costa; a brown subtriangular costal spot within apex, marginal line black, broken behind, solid and heavy below apex; hind wings nearly even fuscous gray, heavier and showing in outer cross-lines; discal spots dark; marginal line broken black, the wing itself with prominent angle at vein 4; beneath light gray, with more or less of scattered broken fuscous ocher, this showing quite definitely in outer bands on all wings.

One female, Colorado, taken June 6th.

D. subfalcata n. sp.—Expands 30–35 mm. Very much in appearance like *D. festa*, the body parts fuscous ocher, and the wings yellow ocher, more or less overlaid with fuscous, especially on outer third; the lines are heavier, more distinct and darker, the middle one more even below costa, the outer one more an-

gulate; the costal and outer shadings are heavier, the outer space sometimes being well darkened; the hind wings are slightly wavy margined, not angulate as in *D. festa*; beneath as *D. festa*, but ochreous, and with shadings much intensified.

Three females, Colorado. The specimens differ considerably, one having the outer margin much darker than the others, and one having the ground color a bluish gray, as in *D. festa*. I would regard them as varieties of *festa*, were it not for the marked difference in the shape of the hind wings.

16. **NYCTIPHANTA** n. gen.

Type *letula* Hulst.

Palpi quite short, porrect, loosely scaled below; tongue weak, not more than one half thorax; front loosely hairy scaled; antennæ bipectinate to apex; thorax and abdomen smooth. Legs smooth, rather long; hind tibiae not swollen, without hair pencil, and with two pairs of spurs in both sexes; fore wings 12 veins, with fovea at base in ♂, 6 at a point with 7, 10 and 11 from cell; hind wings, veins 3 and 4 separate, 6 and 7 stemmed, 5 undeveloped.

Distinguished by the stemming of 6 and 7 in the hind wings, a phase of structure very rare among the Ennominae.

Species. --*N. letula* Hulst, n. sp.

N. letula n. sp. — Expands 40 mm. Palpi yellow ocher; front yellow; antennæ dark fuscous; thorax anteriorly bright yellow, ocher posteriorly. Abdomen ocher; fore wings bright yellow, the color more decided basally and along costa; a broad basal cross-line, faint purple; an outer cross-line, more distinct purple, parallel with outer margin; hind wings very even bright ocher color; beneath fore wings as above, more ocher in color, the basal cross-line wanting, the outer distinct purple; costa stained with broken fuscous; hind wings brighter yellow than above, except along anal margin, with a few scattered brown spots, and a broad uneven outer brown line; discal spots apparent, large, and decided on hind wings.

Arizona, one male.

17. **APOLEMA** n. gen.

Type *carata* Hulst.

Palpi rather long, slender, subascending; tongue developed; front probably scale tufted; antennæ of ♂ flattened, naked, segments close and even; thorax smooth. Legs smooth, hind tibiae not swollen, without hair pencil, and with two pairs of spurs in both sexes; fore wings subangulate, falcate, rather narrow, with fovea at base in ♂, 12 veins, 6 separate, 10 and 11 from cell; hind wings slightly rounded in below anterior angle, then sinuate, 6 and 7 separate, 5 undeveloped, 8 separate from cell.

Close to *Opisthograptis* Hüb., differing especially in the naked flat antennæ of ♂.

Species.—*A. carata* Hulst.

18. **EUASPILATES** Pack.

Geom. Moths, 203, 1876.

Type *spinitaria* Pack.

Palpi short, hairy below; tongue developed; antennæ bipectinate in ♂, the pectinations moderate; front broad, smooth; thorax and abdomen rather smooth; thorax somewhat woolly below. Legs smooth, fore tibiæ short, stout, rather flattened, with two spurs at end, the outer strong, long, the inner smaller and shorter; hind tibiæ club shaped, with two pairs of spurs in both sexes; fore wings without fovea, 11 veins, 10 wanting, 11 from cell anastomosing with 9; hind wings 7 veins all separate, 5 undeveloped.

Species. ~~†~~ *E. spinitaria* Pack.

19. **ANTHELIA** n. gen.

Type *taylorata* Hulst.

Palpi long, subascending, heavy, end member deflexed; tongue developed; front with a long conical hair tuft; antennæ of ♂ filiform, scarcely flattened; thorax and abdomen smooth. Legs smooth, hind tibiæ of ♂ long, swollen, with hair pencil, two pairs of spurs in both sexes; fore wings subfalcate, even, without fovea at base in ♂, 12 veins, 10 from cell, 11 from cell; hind wings all veins separate, 5 undeveloped, 8 separate from the cell.

Species.—*A. taylorata* Hulst, n. sp.

A. taylorata n. sp.—Expands 35 mm. Palpi, front, thorax and abdomen smoky clay color, the prominent tuft of the front and the antennæ slightly less smoky than the rest; palpi quite prominent, the end member drooping; fore wings, apex sharp, slightly falcate, outer margin subangulate at vein 4; color dead clay, darker along costal field, and on outer field of hind wings, which correspond in color with the fore wings; both wings dotted with dark brown atoms: basal line of fore wings obsolete; outer line broad, brown, straight, with edges indistinct, fading into the ground color, beginning at costa three-fourths from base, and striking inner margin two-thirds from base; a corresponding submarginal broad line, more indistinct, starting from near apex, where it is very faint, then running parallel with outer margin; hind wings with a corresponding line three-fifths out from base, indistinct; discal spots wanting, or faintly suggested on fore wings; beneath an even clay color, considerably dotted with brown. Legs corresponding with thorax in color.

Victoria, British Columbia, from Prof. Taylor, to whom I dedicate the species.

20. **SYMPHERTA** n. gen.Type *tripunctaria* Pack.

Palpi long, porrect or drooping, beak like, loose scaled below; tongue developed; front with a long conical hair tuft; antennæ bipectinate in ♂, the pectinations rather short, apex simple; thorax and abdomen rather loose scaled; legs smooth; hind tibiæ in ♂ swollen, without hair pencil in ♂, with two pairs of spurs in both sexes; fore wings falcate, rounded, with fovea at base of wing in ♂, 12 veins, 10 on 9, 11 from cell; hind wings all veins separate, 5 undeveloped, 8 separate from cell.

Species:—

S. marcessaria Pack.*S. julia* Hulst, n. sp.*S. tripunctaria* Pack.*S. coloradensis* Hulst, n. sp.

S. julia n. sp.—Expands 28–33 mm. Palpi and front fuscous, to fuscous ocher; thorax gray to fuscous. Abdomen dull white to fuscous; fore wings light gray to fuscous, somewhat mixed with darker atoms; basal line dark brown to blackish, slightly rounded outward, not distinct; middle line a faint shade, straight, just within discal spot; outer line scarcely visible in black points on veins, or wholly obsolete, its place shown by a broad band nearly or quite obsolete costally; this varies in intensity and color, being sometimes reddish brown, reaching from that to olive color; a submarginal whitish dentate line, parallel with outer margin, runs through this band: this line often indistinct and having on the inner side a series of dark spots, especially marked at veins 3 and 4, and at 6 and 7; discal spots lengthened, enclosing a space of ground color, marginal line of distinct black points; hind wings gray to fuscous, darker outwardly, cross-line faint or obsolete; beneath fuscous to fuscous ocher, in all cases more ochreous on the veins.

Sudbury, Ontario, from Mr. Evans; Washington, from Prof. Riley; Calgary, from Mr. Wolly-Dod; Glenwood Springs, Col., from Dr. Barnes; Montana.

S. coloradensis n. sp.—Expands 35 mm. Palpi and front blackish gray or blackish; thorax dark fuscous gray. Abdomen dark gray, ringed with black; fore wings gray, stained with fuscous, and with a bluish tint, crossed by three subparallel broad lines dark fuscous in color, each somewhat bent at cell, the middle one enclosing the annulate discal spot; a submarginal lighter line parallel with margin or nearly so, edged inwardly below costa and at middle with dark brown cloudings; marginal line of faint black spots, edged outwardly with whitish; hind wings even dark fuscous, with a faint cross-line beyond cell; beneath fuscous, peppered with darker atoms, veins with ochreous tinting.

Colorado, from Mr. Bruce; somewhat resembling some specimens of *S. julia*, but with wings less broad, and pectinations of antennæ of ♂ much shorter.

21. **HOMOCHLODES** n. gen.Type *fritillaria* Guen.

Palpi moderate, subascending, rather long, scaled below; tongue developed; front smooth; antennæ flattened, filiform, very finely ciliate; thorax and abdomen smooth; legs smooth, hind tibiæ in ♂ much swollen, with pencil of hairs, and with a short tuft of hairs at end of femora; two pairs of spurs in both sexes; fore wings rounded, without fovea at base in ♂, 12 veins, 10 from cell with 9, or short stemmed with it, 11 from cell; hind wings all veins separate, 5 undeveloped, 8 separate from cell.

Species.—*H. fritillaria* Guen. (disconventa *Wlk.*)*H. famulata* Hulst.22. **THALLOPHAGA** n. gen.Type *fautaria* Hulst.

Palpi long, subascending, end member small, deflexed; front with strong conical scale tuft; antennæ of ♂ flattened, somewhat lamellate; tongue developed; thorax and abdomen smooth; hind tibiæ of ♂ swollen, with hair pencil, with all spurs; fore wings broad, slightly falcate, without fovea below, 12 veins, 10 and 11 from cell; hind wings 5 undeveloped, 8 separate from cell.

Species.—*T. fautaria* Hulst.23. **AETHYCTERA** n. gen.Type *electa* Hulst.

Palpi rather short, porrect, not heavily scaled; tongue strong; front broad, smooth; antennæ bipectinate in ♂, plumose, pectinations long, filiform, apex simple; thorax and abdomen scaled; hind tibiæ long, not swollen, without hair pencil, with all spurs; fore wings pointed, somewhat falcate, rounded, without fovea below, 12 veins, 10 on 9, 11 from cell; hind wings even, rounded, anal angle quite distinct, 5 undeveloped, 6 and 7 separate, 8 separate from cell.

Species.—*A. electa* Hulst, n. sp.

A. electa n. sp.—Expands 32 mm. Palpi ocher fuscous at end; front ocher yellow, with a fuscous stain; thorax ocher. Abdomen ocher at base, becoming ocher fuscous towards end, the whole intermixed with dark scales; fore wings even violet ocher, evenly peppered over with blackish scales; outer space slightly darkened, veins less violet; hind wings dull white, somewhat peppered along inner edge with darkish scales: beneath light violet ocher, much lighter than above, spattered with dark scales, not so distinct nor sharp in color as above, and these prevalent, especially on the hind wings; at apex of fore wings and along outer margin the color deepens so as to resemble the color above.

Siskiyou County, California.

24. **APÆCASIA** n. gen.Type *detersata* Guen.

Palpi moderate, subascending, rather stout, long scaled below; front with scale tuft; tongue developed; antennæ of ♂ slightly flattened, filiform, finely and shortly ciliate; thorax and abdomen loose scaled; legs smooth, swollen, without hair pencil in ♂, with two pairs of spurs in both sexes; fore wings rounded, even, without fovea in ♂ at base, 12 veins, 10 and 11 from cell; hind wings, all veins separate, 5 undeveloped, 8 separate from cell.

Species:—

A. detersata Guen.*A. extremaria* Wlk.*A. defluata* Wlk.*A. bifilata* Hulst.*A. deductaria* Walk.25. **CATOPYRRHA** Hüb.

Verz. 300. 1818.

Type *coloraria* Fab.

Palpi long, subascending, beak like, end member horizontal, the whole rather heavily scaled, front with strong conical tuft; tongue developed; antennæ strongly bipectinate in ♂, almost to apex; thorax anteriorly long hairy; abdomen rather loose scaled; thorax woolly hairy below; legs smooth, rather long, not swollen, without hair pencil, and with two pairs of spurs in both sexes; wings rounded, even; fore wings 12 veins, without fovea at base in ♂, 10 on 9, 11 from cell; hind wings with fovea beneath at base between vein 8 and cell; 5 undeveloped; 8 separate from cell.

Species.—*C. ferruginosaria* Pack.*C. coloraria* Fab.

C. coloraria var. **perolivata** n. var.—Of the size and markings of the type form, but above of a beautiful olive-green, evenly spread over the whole surface of both wings; beneath a bright clear yellow on all wings from base to outer line, beyond that the yellow more or less overlaid with dark reddish and purple.

Texas, from Mr. Rautenberg. A most striking and beautiful insect, both above and below.

26. **EUEMERA** n. gen.Type *juturnaria* Guen.

Palpi very long, beak like, heavily scaled on first and second members, subascending, end member sharp, horizontal; tongue developed; front with a conical hair tuft; antennæ bipectinate in ♂, apex simple; thorax and abdomen hairy scaled; legs long; hind

tibiæ in both sexes not swollen, without hair pencil, and with two pairs of spurs; wings even; fore wings with fovea at base in ♂, small, close to base, 12 veins, 10 on 9, 11 on cell; hind wings all veins separate, 8 separate from cell, a fovea not strongly developed at base of wing in ♂ between vein 8 and costa.

Species. — *A. juturnaria* Guen.

A. viridirufaria Neum.

27. **CARIPETA** Walk.

C. B. M. pt. 26, 1524, 1862.

Type *divisata* Wlk.

Parennomos Pack., Mass. Agric. Rep. 15, 1870, type *divisata* Walk.

Palpi moderate or rather short, porrect, slender; tongue developed; front smooth; antennæ bipectinate in ♂, apex simple, dentate in ♀; thorax rather rough haired, woolly below; abdomen smooth; legs smooth; hind tibiæ in ♂ swollen and with hair pencil, swollen in ♀, in both sexes with two pairs of spurs; wings even, rounded; fore wings without fovea at base in ♂, 3 and 4 from a point, 6 stemmed with 7, 10 and 11 from cell anastomosing with 12; hind wings all veins separate, 5 undeveloped, 8 separate from cell.

Species: —

C. ida Hulst, n. sp.

C. angustiorata Wlk. [Grt.]

C. grafiaria Hulst.

C. aretaria Wlk. (subochrearia)

C. divisata Wlk.

C. equaliaria Grt.

C. ida n. sp. — Expands 35 mm. Palpi and front buff color, summit a little fuscous; thorax buff ochreous in front, light ocher mixed with white behind. Abdomen ochreous; fore wings somewhat orange ocher, lightening a little on the veins, unicolorous with the exception of a few scattered black scales to the discal spot, which is distinct black; an outer black line, uneven, rather jagged, parallel in its general direction with outer margin from costa to vein 6, then generally rounded inward and again outward, reaching inner margin at posterior angle of wing; a subapical dark space; otherwise the outer space unicolorous, the veins not lightened; hind wings ocher at base, gradually becoming orange ocher at outwardly; discal spots distinct, black, small; beneath unicolorous ocher, with an orange or fulvous tinge.

Colorado, Mr. Bruce. I have the ♀ only, and so cannot positively vouch for its generic reference.

28. **PHENGOMMATÆA** n. gen.

Type *edwardsata* Hulst.

Palpi moderate, porrect, or subascending, loosely scaled; tongue developed; front smooth; antennæ of ♂ flattened, lamellate, naked; thorax woolly above and below; abdomen woolly at base; legs,

femora with long hairs; hind tibiæ of ♂ swollen, without hair pencil, with two pairs of spurs in both sexes; fore wings rounded or subangular at 4, without fovea at base in ♂, 12 veins, 6 separate, 10 and 11 stemmed, anastomosing with 12 and scarcely with 9; hind wings all veins separate, 5 undeveloped, 8 separate from cell.

Species.—*P. edwardsata* Hulst.

P. gertruda Hulst, n. sp.

P. gertruda n. sp.—Expands 40–42 mm. Palpi light ocher, stained with fuscous towards ends; front ocher fuscous; antennæ of same color, lighter basally; thorax ocher below, reddish brown above. Abdomen dull whitish; fore wings bright reddish brown, almost fulvous, marked with broad, white, longitudinal stripes on spaces between the veins; the anterior one between 7 and 8 is submarginal and short; the next reaches from margin almost to stem of 8 and 7; the next between 5 and 6 extends from margin, merging with the next lower, which itself is faint towards margin, the merging being on vein 5 outside of cell and extending longitudinally across cell, more faintly towards base, the lower part separating within cell and joining a corresponding band just below subdiscal vein; sometimes the ground color is apparent on vein 5 all its length, and the two white bands do not actually unite; the parts between 3 and 4 and 2 and 3 are short, not reaching cell; the bands between 1 and 2, and posterior to 1, are straight, the former joining with the one between 4 and 5 near base but not reaching it, the latter reaching to base; hind wings with lines broadened so that the fulvous color is mostly lost on basal two-thirds, and is fainter outwardly on veins; beneath as above, the fulvous more faint on fore wings, stronger on hind wings, especially anteriorly.

Colorado, from Mr. Cockerell and Mr. Bruce.

29. **PLATEA** H.-Sch.

Auseur, Schmet. p. 84, 1855.

Type *californiaria* H.-Sch.

Gorytodes, Gnen. Phal. ii, 179, 1857, type *californiaria* H.-Sch.

Palpi long, porrect, heavy; tongue developed; front with hair tuft; antennæ pectinated in both sexes, in ♂ almost to apex, pectinations moderate; thorax loosely scaled; abdomen smooth; legs smooth, hind tibiæ not swollen, without hair pencil, with two pairs of spurs in both sexes; fore wings subfalcate, sometimes obscurely angulate at 4, especially in ♂, 12 veins, 6 and 7 stemmed, 10 and 11 from cell, without fovea below in ♂; hind wings 6 and 7 stemmed, 5 undeveloped, 8 separate from cell.

Dr. Packard figures the fore wings with 11 veins only. In many specimens I have found no such example and no such tendency.

Species.—*P. californiaria* H.-Sch. (*uncanaria* Gn.)

P. trilinearia Pack.

P. diva Hulst, n. sp.

P. diva n. sp.—Expands 35–38 mm. Palpi slender, porrect, rather long, gray, spattered with dark scales; front, thorax and abdomen gray, with like dark scales intermixed, these rather more dense on anterior part of thorax; fore wings gray, more or less powdered with blackish scales; a faint blackish basal line evident, deeply angled outwardly at middle and not reaching inner margin; middle field darkening outwardly, forming against the gray outer field a scalloped edge, the dentations being inward and on the veins, the posterior being the deeper, and the general trend of the line being away from outer margin; posteriorly the line stops at fold between veins 1 and 2, and, going towards base, joins the basal; outer field with a rather broad darkening along margin, and a black marginal line; fringe white, blackened outwardly at ends of veins; discal spot large, oval, black; hind wings even gray, translucent, slightly darker outwardly; marginal line blackish, fringe gray; discal spot dark, small, faint; beneath fore wings gray, darker basally, and with submarginal darker band; marginal line black, fringe as above; hind wings gray at base, darkening into a broad band on outer half; discal spots faint; legs and abdomen beneath dark gray.

California, from Dr. Riley, taken in Argus Mountains.

30. **ENYPIA** n. gen.

Type *venata* Grt.

Palpi moderate, porrect, rough scaled; tongue developed; front close scaled, rounded; antennæ of ♂ flattened, nearly naked, lamellate; thorax hairy above, woolly below, femora with fringe of hairs. Abdomen smooth; hind tibiæ scarcely swollen, with hair pencil in ♂, with all spurs; fore wings with fovea below in ♂, small, close to base, 12 veins, 10 stemmed with 11 at base; hind wings, 5 undeveloped, 6 and 7 separate, 8 separate from cell; all wings broad, even, rounded.

Species.—*E. venata* Grt.

E. perangulata Hulst, n. sp.

E. perangulata n. sp.—Expands 38–42 mm. In many respects like *E. venata* Grt., and probably its representative in Colorado. The ground color is much darker, being dark gray instead of whitish, and the space between the cross-lines evenly blackish gray. The lines run the same on the fore wings, and there is the same row of black points on the hind wings, though fainter and sometimes obsolete in *E. perangulata*; both fore and hind wings are narrower than in *E. venata*, and the insects has considerably the appearance of *Nepytia semiclusaria* Walk.

Colorado, from Mr. Bruce and Dr. Gillette.

31. **PHILEDIA** n. gen.

Type *punctomacularia* Hulst.

Palpi short, slender; tongue developed; front smooth; antennæ pectinated in ♂ to apex, pectinations rather short; summit of head with something of an overhanging scale tuft; thorax loosely scaled.

Abdomen smooth; legs smooth, hind tibiæ of ♂ swollen, with hair pencil in ♂, two pairs of spurs present in both sexes; fore wings even, without fovea below, 12 veined, 10 and 11 from cell, 12 separate; hind wings all veins separate, 5 undeveloped, 8 separate from cell.

Species.—*P. punctomacularia* Hulst.

32. **NEPYTIA** n. gen.

Type *semiclusaria* Walk.

Palpi moderate or small, not heavy; tongue developed; front broad, rounded, close scaled; antennæ of ♂ pectinated to apex, of ♀ filiform; thorax hairy scaled above, loose haired below. Abdomen smooth; legs slender, hind tibiæ slightly swollen, without hair pencil in ♂; fore wings with fovea below close to base in ♂, 12 veins, 10 and 11 from cell; hind wings 5 undeveloped, 6 and 7 separate, 8 separate from cell; all wings even, rounded.

Species. — *N. nigrovenaria* Pack.

N. semiclusaria Walk.

N. umbrosata Pack.

23. **ALCIS** Curt.

Brit. Ent. iii, 303, 1825.

Type *repandata* Linn.

Hesperumia Pack., Proc. Bost. Soc. Nat. Hist. xvi, 37, 1874, type.

Palpi moderate, sometimes quite long, and sometimes quite short, porrect or subascending, rather rough scaled; tongue developed; front scaled, sometimes tufted; antennæ of ♂ bipectinate, apex simple, the pectinations generally clavate, sometimes filiform, moderate or short, always gradually shortening to simple apex, the antennæ never plumose, of ♀ filiform or serrate; thorax scaled or hairy scaled, rarely tufted posteriorly, somewhat hairy below. Abdomen scaled; hind tibiæ swollen, with hair pencil in ♂, with all spurs; fore wings 12 or 11 veins, varying in the same species, 11 being often or generally absent, with fovea below in ♂; hind wings 5 undeveloped, 6 and 7 separate, 8 separate from cell, the wings rounded, rarely wavy or somewhat angulate.

Alcis and *Cleora* are very near each other, and while the various species included under them are very different in superficial appearance, I find it difficult to find any structural characteristic which will distinctly separate them. *Alcis* generally has shorter pectinations to the ♂ antennæ; they are generally clavate and always

gradually shorten to the simple apex. *Cleora* has long filiform pectinations to the ♂ antennæ, and they always shorten suddenly to the simple apex. The latter characteristic is peculiar to a few species mostly included under the old genus *Boarmia*.

Species:—

<i>A. sulphuraria</i> Pack.	<i>A. obliquaria</i> Grt.
<i>A. spododea</i> Hulst, n. sp.	<i>A. atrolinaria</i> Hulst.
<i>A. multilineata</i> Pack.	<i>A. imitata</i> Walk.
<i>A. dislocaria</i> Pack.	<i>A. californiaria</i> Pack.
<i>A. metanemaria</i> Hulst.	<i>A. latifasciaria</i> Pack.
<i>A. depromaria</i> Grt.	<i>A. haydenata</i> Pack.
<i>A. dissonaria</i> Hulst, n. sp.	<i>A. luridula</i> Hulst, n. sp.
<i>A. dejecta</i> Hulst, n. sp.	<i>A. latipennis</i> Hulst, n. sp.
<i>A. 5-linearia</i> Pack.	

A. dissonaria n. sp.—Expands 35-38 mm. Of the *quinquelinearia* Pack. group. Color light gray or dull white, with a mixture of dark brown scales; lines of wings oblique, the basal obsolete towards costa, with an inner shadow line, the outer evenly sinuate with outer shadow line; the outer line obsolete towards apex, runs from that direction to middle of inner margin; a middle line faint, from costa, through discal spot, nearly reaching outer line then subparallel with it to inner margin: the lengthened discal spot and line with the sinus of the outer line give an impression of an inclosed rounded costal space; hind wings basal line indistinct; outer line with its outer shadow line wavy, most bent in at 3; marginal line fine, black, even; outer margin of fore wings evenly wavy, the hind wings more wavy, but with a strong inner depression at 5; thorax and abdomen light gray, segments of abdomen black anteriorly.

Colorado.

A. spododea n. sp.—Expands 32-34 mm. Palpi and front dark fuscous; antennæ fuscous, pectinations very short, though distinct; thorax fuscous, patagiae blackish gray. Abdomen fuscous, the segments ringed with dark fuscous or black; fore wings dark gray, with four cross-lines, two basal close together, the inner the more diffuse, parallel, very slightly rounded outwardly; the third line is just within the discal spot, broad, black, nearly straight, more diffuse outwardly; the outer line is black, with a faint shadow line outwardly just beyond discal spot, nearly straight, or evenly curved twice; a submarginal jagged white line, edged with fuscous or blackish; marginal space darker than the rest of the wing; margin with black points; hind wings light gray at base, becoming dark gray outwardly; three faint lines showing, each limited by a black spot on inner margin; beneath light gray, the lines faintly shadowed.

Colorado. In appearance very much like *Sciagraphia atrifasciata*.

A. dejecta n. sp.—Expands 35-40 mm. An insect of the size of *Cleora larvaria*, and in its general appearance very much resembling it. The lines are in general very nearly the same, though much less decided in *dejecta*; the outer line of the fore wings is oblique, beginning nearer the apex, and the outer line of the hind wings is less angulate at middle: the whole appearance of the insect

is softer and more subdued; both the front and hind wings are more wavy on outer margin, and there is the difference in the antennal structure of the ♂.

Los Angeles, Cal., and Colorado.

A. latipennis n. sp.—Expands 45 mm. Palpi dull gray; front the same, blackish in middle, summit gray; thorax gray. Abdomen gray, washed posteriorly with fuscous. Wings light gray, overlaid thickly with fuscous scales, the veins with less of these, and therefore lighter; basal line indicated by three or four black points on veins; outer line indicated by black points on each vein parallel with margin and a faint connecting line; a line of intervenular black points on margin, and a submarginal light shade line; hind wings with straight inner shade, and a nearly straight median line emphasized in points on veins; a marginal black line; discal spots on all wings black; beneath more even, hardly lighter in color; discal spots very faint on fore wings, sharp and black on hind wings, no spots or lines otherwise: all wings are broad, the hind ones somewhat scalloped on outer margin.

“Easton, Washington.” From Dr. Riley.

A. luridula n. sp.—Expands 43 mm. Palpi very short, blackish gray; front closely scaled, fuscous gray; antennæ, thorax and abdomen gray, with few darker scales; all wings of an even fuscous gray color, closely scaled, slightly powdered with darker scales, and the whole with a faint violet reflection; beneath as above, somewhat lighter and smoother. Legs concolorous, tarsi becoming darker.

Florida. From Mrs. Slosson.

34. **AMILAPIS** Guen.

Phal. ii, 62, 1857.

Type *unipunctata* Haw.

Palpi moderate or rather short, slender, porrect; tongue very short, not half thorax; front narrow, smooth; antennæ of ♂ bipectinate, apex simple, of ♀ serrate or simple; thorax hairy scaled above, hairy below; abdomen smooth, tufted at end in ♂; legs rather short, rough scaled, hind tibiæ of ♂ without hair pencil, with all spurs; fore wings with fovea below in ♂, 11 or 12 veins, bent or somewhat angulate on outer margin; hind wings 5 undeveloped, 6 and 7 separate, 8 separate from cell; outer margin wavy and quite decidedly projecting into rounded angles at veins 3 and 4.

Species.—*A. unipunctata* Haw.

A. subatomaria Guen.

35. **PARAPHIA** Guen.

Phal. i, 271, 1857.

Type *deplanaria* Guen.

Palpi moderate, slender, heavily scaled below; tongue strong; front scaled; antennæ of ♂ with short pectinations, each pectina-

tion with fascicle of hairs, apex simple; thorax and abdomen scaled, the latter tufted at end; hind tibiæ of ♂ with hair pencil, with all spurs; fore wings with fovea below in ♂, 12 or 11 veins, somewhat waved on outer margin; hind wings 5 undeveloped, 6 and 7 separate, 8 separate from cell; wing waved on outer margin forming rounded, projecting angles at veins 3 and 4.

Species.—*P. deplanaria* Guen.

36. **SPODOLEPIS** n. gen.

Type *substriataria* Hulst.

Palpi moderate, subascending, heavily scaled below; tongue developed; front very broad, rounded, smooth; antennæ of ♀ filiform; thorax with long scales, with an anterior, dorsal, dense, hair tuft, and the patagiæ running out into long stemmed scales forming raised tufts on each side; abdomen smooth; hind tibiæ of ♀ slightly swollen, with two pairs of spurs; fore wings decidedly arched at shoulder, subfalcate, angled at vein 5, 12 veins, 6 separate, 10 and 11 from cell, anastomosing with each other and with 9 and 12; hind wings all veins separate, 5 undeveloped, 8 separate from cell.

I have the ♀ only. It is peculiar from the dorsal tufting and tufted patagiæ.

Species.—*S. substriataria* Hulst, n. sp.

S. substriataria n. sp.—Expands 48 mm. Palpi, front and thorax dark fuscous, the tufts of the latter white on end. Abdomen light fuscous, with a few scattered black scales; fore wings fuscous, showing a violet reflection in some lights across the middle field, with quite thickly scattered, raised, black and white scales; a basal black cross-line, edged within with raised white scales, with three inward angles and three outward loops, the largest on cell: an outer black line edged outwardly with white scales, oblique from costa to vein 6 following this some distance, then at an angle turning down to 4 not far from outer margin, then rounding back to 3, then with two more sinuses from 3 to 2 and 2 to inner margin; a blackish cloud on basal middle field on cell, and another below the cell, a marginal line of intervenular black dashes, parallel with the veins; hind wings light fuscous, black peppered, darker outwardly; beneath dull sordid fuscous, the fore wings faintly showing the lines, the hind wings with dark fuscous striations.

One ♀, Franconia, N. H., from Mrs. Slosson. The insect has somewhat the appearance of *Paraphia*.

37. **STENOTRACHELYS** Guen.

Phal. i, 290, 1857.

Type *approximaria* Hüb.

Palpi rather long, porrect, long and loosely scaled; tongue developed; front broad, bulging, loosely scaled; antennæ bipectinate

in ♂, pectinations long, not reaching to apex; thorax and abdomen loosely scaled; thorax below woolly; legs smooth; hind tibiæ long, somewhat swollen, without hair pencil, and with two pairs of spurs in both sexes; fore wings with fovea at base in ♂, 10 from cell, 11 on 12 and anastomosing more or less with 10; hind wings all veins separate; the fore wings vary from wavy to even margined; the hind wings are sinuate margined, often deeply so.

Species.—*S. approximaria* Hüb.

S. permagnaria Pack.

38. **LYTROSIS** n. gen.

Type *unitaria* H.-Sch.

Palpi rather long, erect, recurved; tongue developed; front smooth; antennæ of ♂ bipectinate almost to apex, pectinations long, plumose; thorax scale haired above, woolly below; abdomen smooth; hind tibiæ with two pairs of spurs in both sexes, with hair pencil in ♂; fore wings wavy margined, with a broad blunt angle at 4, with fovea at base in ♂, 12 veins, 10 separate, 11 on 12; hind wings unevenly wavy on outer margin, with fovea below at base in ♀, all veins separate, 5 undeveloped, 8 separate from cell.

Species.—*L. unitaria* H.-Sch.

39. **MERIS** n. gen.

Type *alticola* Hulst.

Palpi quite short, slender, porrect; tongue developed; front broad, rounded, smooth; antennæ bipectinate in both sexes, in ♀ the pectinations short; thorax hairy scaled above, woolly below; abdomen smooth; hind tibiæ not swollen, with two pairs of spurs; fore wings very slightly angled at 4, 12 veins, 10 and 11 anastomosing with each other, and with 9 and 12; hind wings rounded, all veins separate, 5 undeveloped, 8 separate from cell.

I have the ♀ only. It separates by the presence in that sex of the bipectinate antennæ, and from *Pterotea* may be known by the 12 veined fore wings.

Species.—*M. alticola* Hulst, n. sp.

M. alticola n. sp.—Expands 42 mm. Palpi fuscous, blackish at end. Head smoky; antennæ black above, light gray below and on pectinations; thorax fuscous gray, becoming light gray on patagiæ posteriorly. Abdomen gray, with faint blackish either side of dorsal line; fore wings light gray, thickly and quite evenly overlaid with dark fuscous scales giving a squamous appearance to surface; basal line not sharply defined, broad, slightly rounded outwardly; outer line faint, broad, illy defined, rounded at costa, then parallel with outer margin; discal spot indistinct, elongated, blackish; outer margin slightly angulated at 5; hind wings

light gray, scarcely with blackish scales basally, but these increasing towards outer margin; central cross-line very faint, most sharply defined by a black dot on inner margin; marginal lines blackish; discal spot faint; beneath as above, paler, markings faint.

Colorado, from Mr. Bruce. Female only.

40. **PTEROTÆA** n. gen.

Type *cariosa* Hulst.

Palpi moderate, porrect, rough scaled; tongue developed; front broad, rounded, scaled; antennæ bipectinate in both sexes, the pectinations in ♀ short; thorax rough scaled; abdomen smooth; hind tibiæ swollen; fore wings 11 veins, 11 wanting; hind wings 5 undeveloped, 6 and 7 separate, 8 separate from cell; fore wings even, hind wings triangular, waved on outer margin.

I have the ♀ only; the ♂ almost certainly has fovea below on fore wings, and probably has hair pencil on hind tibiæ.

Species.—*P. cariosa* Hulst, n. sp.

P. cariosa n. sp.—Expands 38 mm. Palpi, front and thorax blackish gray. Abdomen with each segment dark fuscous, becoming black posteriorly, the extreme posterior edge being light gray; fore wings gray, pretty generally overlaid with blackish, the gray showing more plainly on anterior middle field; basal line fine, blackish, not very pronounced, somewhat dentate, generally rounded, the veins basally more blackish; outer line fine, black, dentate, subparallel with margin; a fine, evenly scalloped, whitish line in submarginal space; margin scalloped and with a distinct, even, black marginal line, the black at the points extending out on the veins; hind wings color of fore wings, with the outer line of fore wings extended across; submarginal white line faint, broken; margin scalloped, edged with a distinct black line; beneath light fuscous, with dark fuscous pepperings, becoming entirely dark fuscous on apical portion of fore wings.

Soda Springs, Cal., August, from Dr. Behrens.

41. **IXALA** n. gen.

Type *desperaria* Hulst.

Palpi rather short, porrect, rough scaled below; tongue developed; front broad, rounded, short scaled; antennæ of ♂ bipectinate, apex simple, pectinations long, filiform; thorax smooth, somewhat hairy below; abdomen smooth, slightly tufted at end; legs long, slender, all spurs long and slender; hind tibiæ slender, without hair pencil, with all spurs; fore wings with fovea below in ♂, rather broad, even, rounded, 12 veins, 10 on 9, 11 from cell; hind wings with subcostal fovea below at base, and with fold beneath on inner margin with fringe of hairs within, 5 undeveloped, 6 and 7 separate, 8 separate from cell.

Species.—*I. desperaria* Hulst.

42. **SPODOPTERA** n. gen.Type *opuscularia* Hulst.

Palpi moderate, rather heavy, porrect, loosely scaled; tongue developed; front broad, some rounded, with a short hair tuft below; antennæ bipectinated in ♂, apex simple, bases close together; summit with scale tuft; thorax loosely scaled; abdomen smooth, with large, lateral, broad, hair tuft from posterior part of third segment; thorax woolly hairy below; legs smooth, hind tibiæ scarcely swollen, without hair pencil, with two pairs of spurs in both sexes; fore wings broad, even, rounded, triangular, without fovea at base in ♂, 12 veins, 10 on 9, 11 from cell; hind wings broad, rounded, with a fovea at base in ♂ at vein 8 below, and along inner margin beneath a broad, closely fitting fold, extending nearly the whole margin and nearly covering the cell, filled within with a mass of long yellowish woolly hairs; veins separate, 5 undeveloped, 8 separate from cell.

Species.—*P. opuscularia* Hulst.

43. **SOMATOLOPHIA** n. gen.Type *umbripennis* Hulst.

Palpi moderate, ascending, rather stout, loosely scaled; tongue developed; front rounded, broad, loosely haired; antennæ bipectinate in ♂, pectinations long; summit with loose, overhanging scale tuft; thorax clothed with long hairs, long woolly beneath; abdomen coarsely haired and scaled with dense dorsal tuft of hairs on first and third segments; legs smooth, hind tibiæ in ♂ slightly swollen, without hair pencil, rather heavy, with two pairs of spurs, the upper distant from the end; fore wings even, a small faint fovea in ♂ at base, 12 veins, 1b very strongly furcate at base, 10 on 11, scarcely anastomosing with 9, 11 from cell; hind wings broad, even, all veins separate, 5 undeveloped, 8 separate from cell.

Species.—*S. umbripennis* Hulst, n. sp.

S. umbripennis n. sp.—Expands 48 mm. Palpi, head, thorax and abdomen dull fuscous, the tuft on first segment of abdomen black; all wings dark fuscous, somewhat darker without basal line, within outer line, and in a row of clouded spots at middle of outer line; basal line faint, dentate and irregular; outer line two-thirds out, parallel with outer margin, evenly scalloped, between each vein, a slight whiteness within each dentation, the round of the scallops being outward; hind wings with a corresponding line and with a shading of a row of spots across middle of outer field.

Colorado.

44. **TORNOS** Morr.

Proc. Bost. Soc. Nat. Hist. xvii, 217, 1875.

Type *scolopacinaris* Guen.

Palpi rather long, heavy, porrect, loose scaled; tongue weak, rather short; front scaled, slightly tufted; antennæ bipectinate in ♂; thorax and abdomen stout, smooth; legs smooth, short, swollen, without hair pencil in ♂; with two pairs of spurs in both sexes; fore wings narrow, extended, even, with discal tuft of raised scales, without basal fovea in ♂, but with vein 1b strongly curved up basally, 11 veins, perhaps sometimes 12; when 11 are present 10 wanting, 11 from cell; hind wings 6 and 7 near together; outer margin rounded or sinuate, 5 undeveloped, 8 separate from cell.

Under *Lepiodes* Guenée described two species: *infectaria*, from S. Africa, and *scolopacinaris*. The two species are not congeneric; *infectaria* being more emphasized by being described first, and also figured, is rightly the type of Guenée's genus. I therefore apply Mr. Morrison's generic name to our species.

Species.—*T. scolopacinaris* Guen. (*rubiginosus* Morr.)*T. abjectarius* Hulst.45. **EXELIS** Guen.

Phal. i, 323, 1857.

Type *pyrolaria* Guen.*Patridiva* Walk., C. B. M. Part 26. 1688, 1862. type *pyrolaria* Guen.

Palpi moderate, porrect or subascending, stout, loosely scaled; tongue weak, slender, short; front loose scaled, tufted; antennæ bipectinate in both sexes, apex simple, pectinations long and heavy in ♂, moderate in ♀; thorax and abdomen smooth; legs smooth, short, stout; hind tibiae swollen, without hair pencil, with two pairs of spurs in both sexes; fore wings without fovea at base in ♂, 11 veins, 10 wanting, 11 from cell; hind wings all veins separate, 5 undeveloped, 8 separate from cell.

Species.—*E. pyrolaria* Guen. (*approximaria* Pack.)46. **SYNGLOCHIS** n. gen.Type *perumbraria* Hulst.

Palpi short, rather heavy, loosely scaled; tongue very short and weak; front tubercled, consisting of an external round ridge, hollowed within, rising at the center into a prominent truncated cone, reaching very much beyond the ridge; antennæ bipectinate in ♂, filiform in ♀; thorax and abdomen smooth; legs smooth, fore tibiae

with a rather long slender claw or spine at end; hind tibiæ somewhat swollen, without hair pencil in ♂, with end spurs only; fore wings narrow, extended, without basal fovea in ♂, 11 veins, 10 wanting, 11 from cell, cell long; hind wings rounded, sinused in on outer margin before anal angle, all veins separate, 8 close to cell nearly its whole length, 5 undeveloped.

Species.—*S. perumbraria* Hulst, n. sp.

S. perumbraria n. sp.—Expands 18–25 mm. Palpi and front blackish; thorax dark fuscous. Abdomen blackish or fuscous; fore wings with the dark gray color of the *Tornos* group, consisting of dark fuscous scales laid upon a lighter base: cross-lines faint, blackish, the basal strongly bent out below cell, the outer sinused out beyond cell, and in at vein 2; marginal line black; hind wings somewhat lighter than fore wings, slightly hollowed out before inner angle: beneath slightly lighter than above, without lines.

S. California, from Hy. Edwards and Prof. Riley. Very much like some kindred species in appearance, and determined best by the generic structure.

47. **GLAUCINA** n. gen.

Type *escaria* Grt.

Palpi short, heavy, loose scaled; tongue developed, quite strong; front tubercled as in *Synglochis*, but the central cone much shorter, hardly exceeding outer rim; antennæ bipectinate in ♂, dentate in ♀; thorax and abdomen smooth; fore tibiæ with a fine slender spine at end; hind tibiæ with two pairs of spurs in both sexes, rather swollen, without hair pencil; fore wings narrow, extended, cell long, 11 veins, 10 wanting; hind wings sinused in before anal angle, extended, rounded, all veins separate, 8 close to cell nearly its whole length, 5 undeveloped.

Species.—*G. pygmeolaria* Grt.

G. escaria Grt.

G. incopriaria Hulst.

Tornos candidarius Hulst, Ent. Amer. ii, 192, is a Noctuid, the narrow wings, tubercled clypeus and spined fore tibiæ, leading to the error.

48. **HOLOCHROA** n. gen.

Type *dissociaria* Hulst.

Palpi moderate, rather heavy; tongue apparently obsolete; front broad, smooth; antennæ bipectinate in ♂, extreme apex simple; thorax above long loose scaled, below densely hairy; abdomen smooth; hind tibiæ with end pair of spurs only, not swollen, without

hair pencil; fore wings without basal fovea in ♂, 12 veins, 5 very weak, 10 on 11, scarcely anastomosing with 9, 11 from cell; hind wings all veins separate, 5 undeveloped, 8 separate from cell.

Species.—*H. dissociaria* Hulst.

49. **CÆNOCHARIS** n. gen.

Type *interruptaria* Grt.

Palpi short, rather stout, loosely scaled; tongue well developed; front tubercled as in *Synglochis*, but the central portion evenly rounded or roughened and flat; antennæ bipectinate in ♂, dentate in ♀; thorax and abdomen smooth; fore tibiæ unarmed, hind tibiæ scarcely swollen, without hair pencil and with two pairs of spurs in both sexes; fore wings extended, 11 veins, 10 wanting, 11 from cell; hind wings extended, with a considerable sinus on outer margin just before anal angle, 6 and 7 short stemmed, 5 undeveloped, 8 separate from cell.

Species:—

C. eupitheciaria Grt.

C. interruptaria Grt.

C. elongata Hulst, n. sp.

C. ochrofuscaria Grt.

C. elongata n. sp.—Expands 25 mm. Midway in size between *C. eupitheciaria* Grt. and *C. interruptaria* Grt., and of the same general color; lines on fore wings distinct, as in *C. interruptaria*, but widely separate, both scalloped between the veins, the outer one continued faintly on hind wings; discal spots distinct black.

Texas, Arizona.

50. **CONIODES** n. gen.

Type *plumigeraria* Hulst.

Palpi short, scarcely hairy; clypeus broad, flattened, somewhat long haired; antennæ of ♂ very lengthily and plumosely bipectinate to apex; tongue obsolete; thorax and abdomen slender, the thorax woolly hairy below, rather long loose hairy above, the abdomen not tufted; legs slender, femora glaucous, hind tibiæ with two pairs of spurs, without hair pencil; fore wings 12 veins, 3 and 4 separate, 6 short stemmed with 7, without fovea at base; hind wings 3 and 4 separate, 5 undeveloped, 6 and 7 separate, 8 separate, approximating cell to beyond middle.

The antennæ of the ♂ in this genus are more lengthily plumose than in any other American Geometer; vein 5 of the fore wings is also weak, amounting to scarcely more than a fold.

Species.—*P. plumigeraria* Hulst.

51. **AETHALODES** n. gen.Type *packardaria* Hulst.

Palpi rather short, slender, smooth; tongue obsolete; front smooth; antennæ of ♂ bipectinate to apex, pectinations long, plumose; thorax and abdomen smooth; hind tibiæ not swollen, without hair pencil, with two pairs of spurs in both sexes; fore wings broad, even, without fovea at base in ♂, 12 veins, 10 on 11, 11 from cell; hind wings broad, outer margin sinuate with dull angle at end of veins, all veins separate, 5 undeveloped, 8 separate from cell.

Species.—*A. packardaria* Hulst.

52. **CHESIADOSES** n. gen.Type *morosata* Hulst.

Palpi very small, slender; tongue obsolete; front very protruding, rounded, close scaled; antennæ bipectinate in ♂ apex simple; thorax and abdomen smooth; hind tibiæ slender, without hair pencil, with two pairs of spurs in both sexes; fore wings even, rounded at both angles, without fovea at base in ♂, 11 veins, 10 wanting, 11 from cell; hind wings long, even, all veins separate, 5 undeveloped, 8 separate from cell.

Close to *Aethalodes* Hulst, differing in the strongly bulging clypeus and simple apex of antennæ.

Species.—*C. morosata* Hulst, n. sp.

C. morosata n. sp.—Expands 42 mm. Palpi and front blackish; thorax blackish gray. Abdomen blackish gray, becoming black posteriorly on each segment; fore wings blackish gray, with three slightly rounded blackish lines subparallel with outer margin, and with nearly the same distance between the basal and middle as between the middle and outer; the outer line a little emphasized on the veins; an even, submarginal whitish line beginning at a triangular apical whitish spot, and running slightly outwardly from margin; hind wings light grayish fuscous, darker along inner margin and outwardly with faint outer line; discal spots present, indistinct; beneath fore wings light gray, hind wings fuscous gray.

Sierra Nevada, Cal., from Henry Edwards.

53. **SELIDOSEMA** Hüb.

Verz. 299, 1818.

Type *ericetaria* Vills.

Adactylotis Hüb., Verz. 303, 1818, type *gesticulata* Hüb.

Palpi moderate or quite long, porrect, rough scaled; tongue developed; front scaled, sometimes somewhat tufted; antennæ of ♂ bipectinate, apex simple, the pectinations filiform, long, generally

suddenly shortening to simple apex, the antennæ generally plumose, of ♀ filiform or serrate; thorax scaled, sometimes tufted posteriorly, somewhat hairy below; abdomen scaled; hind tibiæ often swollen, with all spurs, without hair pencil in ♂; fore wings 12 or 11 veins, varying in the same species, even, with fovea below in ♂; hind wings 5 undeveloped, 6 and 7 separate, 8 separate from cell, the wings rounded, even, or slightly wavy.

Species:—

<i>S. muricolor</i> Hulst, n. sp.	<i>S. pulmonarium</i> Grt.
<i>S. correllatum</i> Hulst, n. sp.	<i>S. humarium</i> Guen.
<i>S. wrightiarium</i> Hulst.	<i>S. umbrosarium</i> Guen.
<i>S. fuliginarium</i> Hulst.	<i>S. albescens</i> Hulst, n. sp.

S. muricolor n. sp.—Expands 34–36 mm.—Palpi, front and antennæ dark sordid fuscous; summit, thorax and abdomen light gray; all wings very smooth, even fuscous, or fuscous gray, without lines or spots; fore wings with costa and apical space, hind wings with outer space and inner margin slightly darker; margins with fine, intervenular, black dots; hind wings somewhat rounded out at vein 4; beneath almost exactly as above.

Hazleton, Pa., from Dr. Dietz. Very much in color like *Diasictis ineptata* Walk. (argillacearia Pack.), differing by the less rounded fore wings, the obtusely angled hind wings and the plumose antennæ.

S. correllatum n. sp.—Expands 28–30 mm. Palpi and front fuscous to dark fuscous; thorax fuscous gray to whitish fuscous. Abdomen whitish or grayish fuscous; fore wings white, or light bluish gray, somewhat scattered over with darker scales; basal line black, geminate, often indistinct, especially on cell; middle line indistinct, or a faint fuscous shading; outer line black, curved, geminate, more widely separate subcostally, with a reddish included shading on third quarter from costa. Wings slightly falcate: marginal line broken, black, heavier subapically; hind wings whitish or light gray, more fuscous along inner margin; all wings with distinct black discal spots; beneath light gray, heavily powdered with fuscous, discal spots distinct, diffuse, black.

Colorado, California, Oregon; the Oregon specimen taken August 24th.

S. albescens n. sp.—Expands 42 mm. Palpi blackish; front blackish, with a line of white along summit; rough, somewhat overhanging scales between antennæ, whitish on edge, blackish in middle; collar light gray, blackish behind; thorax whitish gray, with low posterior tufts. Abdomen whitish gray, with black speckles above, fuscous stained towards end. Wings even, clear whitish gray, with a few black scales; fore wings with black basal line, bent, rounded out most strongly on costal half; middle line at discal point, black and distinct at costa, showing in black spots across wing parallel with basal line; outer line black, running very much as in *larvaria*; a row of marginal black spots; hind

wings basal line lost; middle line showing only in a black spot on inner margin; outer line black, a little dentate outwardly on veins, slightly angled at 6; margin wavy; a black marginal line; discal spot oval, annulate, black, quite distinct; beneath even light fuscous on all wings.

Seattle, Wash., from Mr. Bolter. The insect has much the appearance of *Ectropis grisearia* Grt.

54. **MERICISCA** n. gen.

Type *gracea* Hulst.

Palpi short, porrect; front smooth; antennæ of ♂ bipectinate, apex simple, pectinations claviform; antennæ of ♀ filiform; thorax scaled, somewhat tufted posteriorly; abdomen smooth; hind tibiæ swollen, without hair pencil, with all spurs; wings broad, rounded, slightly wavy margined outwardly; fore wings without fovea below in ♂, 12 veins, 10 and 11 from cell; hind wings 5 not developed, 8 separate from cell.

Species. ~~/~~ *M. gracea* Hulst, n. sp.

M. gracea n. sp.—Expands 38–42 mm. Palpi short, light gray, with blackish intermixed, black at tips: front black on central perpendicular line, dark fuscous laterally, crown dark gray; thorax blackish dorsally at center, dark gray on patagiae and around upper edges. Abdomen, first segment black in front, white behind, the rest dark fuscous, becoming blackish dorsally, more so on second and third segments; fore wings light gray, striated with black; basal line fine, black, angulated outwardly at cell and vein 1; outer line heavier, distinct, black, three-fifths out on costa straight to vein 5, then turning at a right angle inwardly nearly to cell, then at a little more than a right angle to between 2 and 3, then rounding to inner margin, reaching it a little within the middle; a blackish cloud or band across middle field, darkest within, forming towards and at inner margin a broad band with the outer cross-line; a black spot near costa within apex, and a broad, central, submarginal cloud reaching to outer line; on the basal field, central, is a cloud of reddish brown, and a broad band of the same color across the whole wing exterior to outer line; a row of marginal black spots; hind wings in general like the fore wings, lacking the basal line and reddish shade, but with outer line beyond middle distinct, rounding outwardly from anterior margin to vein 2, then turning to near middle of inner margin, a broad blackish central band less marked anteriorly, and an outer reddish brown band beyond cross-line, this also obsolete at anterior margin; marginal line black, distinct; outer edge of both wings somewhat scalloped, the hind ones more decidedly; beneath fuscous, smooth, the black parts above reflecting through.

Colorado, from Mr. Bruce.

55. **CLEORA** Curt.

Brit. Ent. ii, pl. 83, 1825.

Type *cinctaria* Schiff.

Boarmia Treits. Schm. Eur. vi, 1, 187, 1827, type *cinctaria* Schiff.

Palpi moderate or quite long, porrect or subascending, rough scaled; tongue developed; front scaled, sometimes tufted; antennæ

of ♂ bipectinate, apex simple, the pectinations filiform, long, suddenly shortening to simple apex, the antennæ generally plumose, of ♀ filiform or serrate; thorax scaled, sometimes tufted posteriorly, somewhat hairy beneath; abdomen scaled; hind tibiæ swollen, with all spurs, with hair pencil in ♂; fore wings even, 12 or 11 veins, varying in the same species, with fovea below in ♂; hind wings 5 undeveloped, 6 and 7 separate, 8 separate from cell, the wings rounded, even, or slightly wavy.

Species:—

<i>C. furfurata</i> Hulst.	<i>C. indicataria</i> Walk.
<i>C. dataria</i> Grt.	<i>C. pampinaria</i> Guen.
<i>C. opacaria</i> Hulst.	<i>C. formosata</i> Hulst, n. sp.
<i>C. lixaria</i> Grt.	<i>C. vellivolata</i> Hulst.
<i>C. cribraria</i> Guen.	<i>C. larvaria</i> Guen.

C. formosata n. sp.—Expands 35 mm. Close to *C. indicataria* Walk. (*polygrammaria* Pack.); the color is light gray, overlaid with fuscous lines, black, distinct; the outer is evenly and regularly bent twice, followed by a distinct brown band; the submarginal line is distinct white, the marginal line black, edged at base of fringe with white, hind wings with three dark shade lines, wavy, parallel with each other and the outer margin, all extra-discal; beneath light fuscous, evenly peppered with dark fuscous scales, lighter on the veins on fore wings.

Colorado, Mr. Bruce. A more than ordinarily showy insect of its class, the colors more vivid, and especially distinct by the brown cross band.

56. **MELANOLOPHIA** n. gen.

Type *canadaria* Guen. (*Tephrosia*).

Palpi short, stout, porrect, heavily scaled; tongue developed; front loose scaled, somewhat tufted below; antennæ bipectinate in ♂, apex simple, pectinations moderate; summit with slight scale tuft; thorax loosely scaled above, woolly haired below; abdomen coarsely scaled and haired with lateral tuft of hairs on third segment; legs smooth, hind tibiæ in ♂ swollen, with a dense pencil of fine hairs; two pairs of spurs in both sexes; fore wings even, without fovea at base in ♂, 12 or 11 veins, 10 and 11 stemmed from cell; hind wings all veins separate, 5 undeveloped, 8 separate from cell.

Dr. Packard figures *canadaria* with 11 veins in fore wings; this may happen, though I have seen no example. In that case 11 is wanting, having become coincident with 10.

Species.—*M. canadaria* Gn.

57. **AETHALOPTERA** n. gen.Type *intextata* Walk.

Palpi moderate, porrect, rather slender; tongue developed; front smooth; antennæ of ♂ filiform, with two pairs of fascicles of hairs on each segment; thorax and abdomen smooth, the latter tufted at end; hind tibiæ of ♂ with hair pencil, swollen and with all spurs in both sexes; fore wings with fovea below at base in both sexes, 11 veins in all specimens examined, 11 wanting 10 from cell; hind wings 5 undeveloped, 6 and 7 separate, 8 separate from cell; all wings broad, even, rounded.

Differs from *Ectropis*, especially in the hair pencil of the hind tibiæ of the ♂.

Species.—*C. intextata* Walk. (anticaria Walk.)

58. **GLENA** n. gen.Type *cognataria* Hüb.

Palpi moderate, porrect, rough scaled; tongue developed; front smooth; antennæ of ♂ bipectinate, apex simple, of ♀ sharply serrate; thorax smooth above, slightly hairy below; abdomen smooth; hind tibiæ of ♂ swollen, with hair pencil; fore wings with fovea below in both sexes, that of ♂ being large and prominent, 11 veins in all specimens examined, 11 obsolete, 10 from cell, hind wings 5 undeveloped, 6 and 7 separate, 8 separate from cell.

To be recognized more especially by the fovea of the fore wings of the ♀, in which it agrees with *Aethaloptera*, but differs in the bipectinate antennæ of the ♂.

Species.—*G. cognataria* Hüb.

G. minimaria Guen. (texanaria Hulst).

59. **ECTROPIS** Hüb.

Verz. 316, 1818.

Type *crepuscularia* Bork.

Tephrosia Bois., Index Meth. 198, 1840. type *crepuscularia* Bork.

Palpi moderate, rather light, porrect; tongue developed; front quadrate, scaled; antennæ of ♂ filiform, with two pairs of fascicles of hairs on each segment; hind tibiæ somewhat swollen, without hair pencil, with all spurs; thorax and abdomen scaled; fore wings with fovea below in ♂, 12 or 11 veins; hind wings 5 undeveloped, 6 and 7 separate, 8 separate from cell; all wings even, rounded, broad.

Species.—*E. crepuscularia* Schif.

E. grisearia Grt.

60. **EPIMECIS** Hüb.

Verz. 315, 1818.

Type *hortaria* Fab.*Bronchelia* Guen., Phal. i, 287, 1857, type *hortaria* Fab.

Palpi rather short, stout, rough scaled; tongue strong; front scaled, slightly tufted; antennæ of ♂ bipectinate, apex simple, bristled, and slightly fasciated, of ♀ filiform with two long bristles at summit of each segment; thorax scaled, untufted, hairy below; abdomen scaled; hind tibiæ slightly swollen, without hair pencil in ♂, with all spurs; fore wings with fovea below in ♂, 12 veins, 10 and 11 from cell, separate from each other and 12; hind wings 5 undeveloped, 6 and 7 separate, 8 separate from cell and running parallel with it much more shortly than usual, not more than one-third its length; all wings broad, rounded, the hind wings deeply scalloped.

Very close to *Selidosema*, and scarcely to be separated from it.

Species.—*E. hortaria* Fab. is probably *Geometra virginiana* Cram.

61. **LYCIA** Hüb.

Verz. 319, 1818.

Type *hirtarius* Clerck.*Amphidasis* Treit. Sch. Eur. vi, 1, 229, 1827, type *betularius* L.

Palpi moderate or short, long rough scaled; tongue obsolete, or very short; front densely haired, or long scaled; antennæ of ♂ bipectinate, apex simple; thorax densely haired above and below, with slight anterior and posterior tufts; abdomen densely hairy, without tuftings; femora, tibiæ, sometimes tarsi, long haired; hind tibiæ with upper spurs generally obsolete, rarely very small; fore wings without fovea at base in ♂; hind wings 5 undeveloped, 8 separate from cell.

Differs from *Biston* Leach, of which *stratiarius* Hufn. is type, and of which *Eubyja* Hüb. is a synonym in the simple apex of antennæ of ♂.

Species.—*L. ursaria* Pack.

L. virginaria Grt.

L. cognataria Guen.

62. **PHLEOURA** n. gen.Type *mexicanaria* Grt.

Palpi moderate, slender, long haired; tongue obsolete; front densely long haired; antennæ of ♂ bipectinate to apex, of ♀ with short pectinations, apex simple; thorax densely long scaled above,

densely hairy below; abdomen rough scaled, with a tuft or pencil of hairs dorsally on each segment; legs somewhat long haired, hind tibiae of ♂ not swollen, without hair pencil, with one pair of spurs in both sexes; fore wings without fovea below at base in ♂, generally 11 veins; hind wings 5 undeveloped, 8 separate from cell.

Differs from other allied genera especially in the bipectinate antennæ of ♀.

Species.—*P. mexicanaria* Grt.

P. cristifera Hulst, n. sp.

P. cristifera n. sp.—Expands 44 mm. Palpi dark fuscous, black at end; front smoky black; summit dark fuscous; thorax dark fuscous gray, blackish posteriorly. Abdomen dark fuscous, first two segments lined posteriorly with black, posterior segments with black much intermixed. Wings dark fuscous, these with thorax and abdomen washed with a soft violet-brown tint; lines after the *cognataria* pattern, on fore wings both heavy, distinct, black; basal beginning one-third out, evenly curving around to inner margin and reaching nearly to base; outer with broad, obtuse, prominent angle at vein 4, thus lower than in *cognataria*, which is at vein 5; hind wings outer line at middle, black, strong, distinct, even, very slightly wavy, without angle; inner line close by, subparallel, somewhat closer posteriorly, fainter; discal spot of fore wings an oval cloud, not distinct; beneath as above, with much less emphasis, the violet tint, however, stronger in certain shades. Legs blackish and fuscous.

Colorado, from Mr. Bruce.

63. **NACOPHORA** n. gen.

Type *quernaria* A. and S.

Palpi short, porrect, with long hairs; clypeus flattened, densely long haired; tongue absent, or very short; antennæ strongly bipectinate in ♂, apex simple; thorax and abdomen stout, heavy, thorax long woolly haired below, heavy haired above; abdomen slightly tufted dorsally on each segment; legs, with femora, woolly; hind tibiae with one pair of spurs; fore wings 12 veined, 3 and 4 separate, 6 stemmed with 7, with fovea at base; hind wings 3 and 4 separate, 5 obsolete, 6 and 7 separate, 8 separate, approximating cell for one-half its length.

Species:—

N. minima Hulst, n. sp.

N. carlotta Hulst, n. sp.

N. phigaliaria Guen.

N. quernaria Ab. Sm.

N. cupidaria Grt.

N. minima n. sp.—Expands 32–33 mm. Palpi, front and thorax with black and light gray scales intermixed, giving a dark gray color; thorax with two posterior subdorsal tufts of long scales, these black at the end. Abdomen grayish

fuscous, the segments interlined with lighter fuscous, the segmental dorsal tufts distinct, prominent, black on end; fore wings light gray, finely spattered over with black, giving a uniform, granulated, blackish gray color, the veins a little darkened; a basal, black, distinct cross-line, straight, except with a clean cut angle outwards from submedian to 1a; an outer corresponding line, running from costa towards middle of outer margin till it reaches vein 5, then returning to cell at posterior angle, then with some waviness to inner margin; a marginal black line; discal spots indistinct, large; hind wings light gray at base, growing to blackish gray outwardly, with marginal black line and faint discal spots; beneath gray, the outer cross-line distinctly showing on all wings, even and rounded.

Colorado, from Mr. Bruce. I have females only, but they are in good condition.

N. carlotta n. sp.—Expands 42 mm. Thorax below, palpi, head and antennæ dull fuscous; the palpi black at end and front, blackish at middle; collar same color; thorax above dull fuscous, with a grayish tint. Abdomen fuscous gray, the segments with a shade of ochre brown anteriorly, each segment with a black spot on either side of dorsal line posteriorly, except on second segment, where the black reaches across the segment; fore wings fuscous, with blackish scales intermixed on basal field, light gray on middle field, blackish fuscous in a broad band beyond outer line, and gray submarginally; basal line black, indistinct near costa, beginning one-third out, rounded, some sinuate, rounding from subdiscal nearly to base on inner margin; outer line distinct, parallel with outer margin to 4, rounding inwardly to cell, then continuing its curve striking inner margin two-thirds out; a central broad stripe covering discal spot, straight from costa till it nearly meets the outer line, then subparallel and partly coalescing with it; hind wings light gray, a middle band faintly indicated, becoming evident at middle of inner margin; a distinct outer black line, sinuate across wing; discal spot black, distinct; outer field somewhat darker; beneath fuscous, the lines clearly evident, discal spot quite distinct.

Charlotte Harbor, Florida, from Mrs. Slosson.

64. **APOCHEIMA** Hüb.

Verz. 319, 1818.

Type *hispidaria* Fab.

Ithusia Hüb., Verz. 319, 1818, type *zonaria* Schiff.

Nyssia Dup., Hist. Nat. vii, 283, 1829, type *zonaria* Schiff.

Palpi short, porrect, long haired; tongue obsolete; front densely long haired; antennæ of ♂ bipectinate, apex simple, of ♀ filiform; thorax densely long haired above and below, somewhat tufted; abdomen densely long hairy; legs long, haired on femora and tibiæ; hind tibiæ of ♂ not swollen, without hair pencil, in both sexes with one pair of spurs; fore wings without fovea below, 12 or 11 veins; hind wings 5 undeveloped, 6 and 7 separate or stemmed, 8 separate from cell; head retracted, small; female with wings rudimentary, or very little developed.

Species.—*A. rachele* Hulst, n. sp.

A. rachele n. sp.—Expands 33 mm. Palpi and thorax clothed with long woolly hairs, black at base, light gray towards end, giving these parts a gray appearance; this gray color is stronger on the patagiæ posteriorly, at the extremity of the abdomen, and on its sides; summit of head rust-brown, as is the thorax posteriorly at dorsum; also a rust-brown tuft dorsally on the first five segments of the abdomen; antennæ black. Wings semi-diaphanous, smoky gray, loosely and scantily covered with smoky gray scales and hairs; costa narrowly rust-brown half way out from base; veins lined with black, an extra black line showing on the fold of 1a; a somewhat faint, yet distinct basal cross line, and another beyond cell parallel with outer margin; the outer margin of the cell is darker, thus with the cross-line inclosing a triangular costal space; hind wings with a corresponding cross-line at middle; beneath much as above, but fainter.

This insect is very much in appearance like *A. lapponaria* Bois. of Europe. Mr. Bruce tells me that in England he used to take *A. zonaria* along salt marshes. *A. rachele* he found in grass about some salt springs in Colorado. It is a beautiful insect, the first of its group discovered in America, and I take pleasure in naming it after the wife of its discoverer.

65. **RHAPHIDODEMAS** n. gen.

Type *titea* Cram.

Palpi short, loosely scaled, not heavy; tongue developed, but not strong; front loosely haired; antennæ of ♂ bipectinate almost to apex, of ♀ filiform; thorax heavy scaled, tufted anteriorly and posteriorly, hairy below; abdomen hairy scaled, the segments above armed with many chitinous spines; hind tibiæ of ♂ swollen, without hair pencil, with all spurs; fore wings without fovea below in ♂, 11 veins; hind wings 5 undeveloped, 6 and 7 separate, 8 separate from cell, ♀ wingless.

Peculiar in the spinous armature of the abdomen, much surpassing in this respect *Paleacrita* Riley and *Chondrosoma* Anker. *Phigalia*, a European genus, type *pedaria* Fab., shows the same tendency, but it is not so marked. *Phigalia* is also much more hairy in vestiture.

Species.—*R. nevadaria* Hulst, n. sp.

R. olivacearia Morr.

R. titea Cram.

R. nevadaria n. sp.—Expands 34–36 mm. Very near *R. titea* and *R. olivacearia*; about the size and wing shape of the latter, with the more distinct cross-lines of the former. The fore wings have more of blackish than *R. titea*, this being more emphasized in the outer shading of the outer line; all the veins outwardly are lined with black, especially strong beyond outer line; the middle and outer lines merge together at inner margin; the spinulations of the abdomen are not as strong as in the other species.

Nevada, Colorado.

66. **ERANNIS** Hüb.

Verz. 320, 1818.

Type *defoliaria* Clerck.*Hybernia* Latr.. Fam. Nat. 477, 1825, type *defoliaria* Clerck.

Palpi very short, almost rudimentary; tongue very short, almost obsolete; front scaled, broad; antennæ of ♂ with long fascicle of hairs from four slight protuberances on each segment; thorax hair scaled, somewhat tufted anteriorly, hairy below; abdomen scaled; hind tibiæ not swollen, without hair pencil, in both sexes with two pairs of spurs; fore wings without fovea below in ♂, 12 veins; hind wings 5 obsolete, 6 and 7 widely separate, 8 separate from cell; wings broad, rounded, even; ♀ with wings obsolete.

Under *Alsophila* I have spoken of the application of the generic term *Erannis*. It cannot be applied to the species ordinarily grouped under *Anisopteryx* Steph. as they belong to Hübner's genus *Alsophila*. The only proper application is to regard *defoliaria* as the type of *Erannis*, as this was beyond question the idea of Hübner. The species ordinarily grouped together in that genus I do not believe to be properly congeneric. Apart from other things there are great differences in the antennæ of the males, the majority having the antennæ bipectinate and so decidedly different from the antennæ of *E. defoliaria*. *Hybernia* Latr. if not regarded as a synonym of *Erannis*, must stand for the species with bipectinate antennæ in the ♂. But that group had already been called *Agrilopis* by Hübner. Our species are all of the *defoliaria* group.

Species.—*E. defoliaria* var. *vancouverensis* Hulst.

E. tiliaria Harr.

E. coloradata Hulst, n. sp.

E. defoliaria var. *vancouverensis* n. var. I give this varietal name to a form which seems to be common at Victoria, Vancouver Island, Canada. It is very uniform, and is much more sharply marked than the typical *defoliaria*, and the shadings of the ♂, and the general color of the ♀, are much darker. The typical form of *defoliaria* is not found as yet in our faunal limits so far as I am aware.

E. coloradata n. sp.—Expands 46 mm. Palpi fuscous brown, black at end; front fuscous brown; thorax and abdomen smoky ocher, the segments of abdomen darker anteriorly and dorsally; fore wings fuscous ocher, overlaid with dull brown; basal field dark, limited by a black line, which begins at costa one-quarter out, runs sharply outward, making sharp dentations at subcostal and base of vein 5, then forms a sinus inwardly with another sharp dentation near vein 1a;

the middle field is much lighter, being a sort of ocher brown; the outer line is black, distinct, beginning at costa two-thirds out, forming a dull angle on fold between 5 and 6, turning backward at vein 3 just outside the cell, then running parallel with outer margin to 1a, then forming a sinus outwardly to inner margin; outer field darker than middle field, lighter than basal, with a darker shading along costa near apex; discal spot distinct, black; hind wings translucent, light ocher, slightly striated with brown; beneath upper surface indistinctly reflected, paler, basal line obsolete, outer line quite distinct, outer field darkest.

Colorado, from Dr. Barnes.

Considerably like *E. tiliaria* in general appearance.

67. **CINGILIA** Walk.

Trans. Ent. Soc. Lond. third series, vol. i, 76, 1862.

Type *catenaria* Cram.

Cuterra Grt., Can. Ent. viii, 205, 1876, type *catenaria* Cram.

Vestigifera Gump., Nov. Act. Halle, 49, 326, 369, 1887, type *catenaria* Cram.

Palpi moderate, slender, lightly scaled, porrect; tongue developed; front broad, round, clothed with hair; antennæ bipectinate to apex in ♂, dentate in ♀ pectinations, in ♂ filiform; thorax hairy above, woolly below; abdomen smooth, scaly; legs slender, hind tibiæ not swollen, without hair pencil, with two pairs of spurs in both sexes; fore wings even, rounded, without fovea at base in ♂, 12 veins, 6 stemmed with 7, 10 and 11 from cell anastomosing with each other, and with 9 and 12; vestiture rather thin, hairy scaled.

Species.—*C. catenaria* Cram.

68. **EUCATERVA** Grt.

Pap. ii, 80, 1882.

Type *vararia* Grt.

Palpi of ♂ extraordinarily long, deltoid like, somewhat drooping second member much the largest, lightly clothed; of ♀ moderate, somewhat drooping; tongue obsolete; front broad, closely scaled; thorax and abdomen smooth; hind tibiæ not swollen, without hair pencil, with two pairs of spurs in both sexes, all spurs short and light; antennæ of ♂ bipectinate to apex, of ♀ filiform; fore wings even, rounded, without fovea in ♂, 12 veins, 6 separate, 10 and 11 from cell anastomosing with each other and with 9 and 12; hind wings cell long, 6 and 7 close or short stemmed, a fovea at base of 8 below in ♀, 5 undeveloped, 8 separate from cell.

Species.—*E. vararia* Grt.

69. **PHILTRÆA** n. gen.

Type *elegantaria* Hy. Edw.

Palpi very small, light, almost obsolete; tongue obsolete in ♂, very short in ♀; front flattened, hairy; antennæ bipectinate to

apex in ♀, pectinations long, bipectinated in ♀, apex simple, pectinations rather short; thorax and abdomen smooth; hind tibiæ not swollen, without hair pencil, with two pairs of spurs in both sexes; fore wings even, without fovea at base in ♂, 6 separate, 10 and 11 from cell anastomosing with each other, with 9 and with 12; hind wings rounded, even, 6 and 7 stemmed, 5 undeveloped, 8 separate from cell.

Species.—*P. eleganturia* H. Edw.

70. **ACANTHOPHORA** n. gen.

Type *graeffii* Hulst.

Palpi rather short, slender, lightly scaled; tongue developed; front broad, scaled; antennæ of ♀ bipectinate, apex simple; thorax and abdomen scaled, untufted; fore tibiæ short, broad and flat at end, with a claw on each side, the one on the inner side being the stronger; hind tibiæ of ♂ not swollen, without hair pencil, with all spurs; fore wings without fovea below in ♂, 11 veins, 10 absent, 11 from cell; hind wings 5 undeveloped, 6 and 7 separate, 8 separate from cell.

Species.—*A. graeffii* Hulst, n. sp.

A. graeffii n. sp.—Expands 32 mm. Palpi white, scales black at end; front white, with a black outward ring; antennæ fuscous; thorax white. Abdomen with some scattered black scales; fore wings white, some blackish along costa and a few small scattered black striæ, a little more close beyond disc, about 35 to 40 altogether; a marginal line of intervenular black points; hind wings white, with scarcely any black scales; marginal line of black points; beneath much as above, but with hind wings considerably black spotted.

Texas, from Mr. Graef.

71. **TRACHEOPS** n. gen.

Type *bolteri* Hulst.

Palpi very short, drooping; tongue developed; clypeus subquadrate, rather broader than long, swollen, the whole surface pitted and roughened; antennæ of ♂ bipectinate, segments short, pectinations short and thick, half as broad as length of segments, apex and base simple; thorax rough scaled, hairy below; abdomen smooth; hind tibiæ with all spurs; fore wings with fovea below, close to base and small, 12 veins, 6 widely separate from 7, 10 and 11 short stemmed with each other, 10 anastomosing with 9 and 11 with 12; hind wings 3 and 4 separate, 5 undeveloped, 6 and 7 separate, 8 separate from cell.

Distinguished more especially by the roughened pitted clypeus and the somewhat peculiar ♂ antennæ.

Species.—*T. bolteri* Hulst, n. sp.

T. bolteri n. sp.—Expands 32 mm. Palpi fuscous; front fuscous clay color; thorax fuscous clay anteriorly, becoming light fuscous gray posteriorly, with a lunule of black at middle of each patagia, and a black dorsal spot posteriorly on thorax. Abdomen dull whitish, with black spots dorsally on each segment; fore wing whitish, with an olive tint basally, somewhat mixed with fuscous scales and with much of black in lines and shadings, these giving the wing an irregularly whitish and black appearance; first there is a black costal spot at extreme base, then a blackish clouding darkest at costa on basal field: basal line black, curved and angled, the largest angle being on submedian space inwardly; a somewhat indefinite middle intra-discal black line, zigzag, with two angles on each side, followed outwardly with blackish cloudings: discal spot black, distinct; outer line bent, rounded, black, with long teeth running on outer side out on veins; submarginal blackish cloudings and a row of black intervenular spots; hind wings white, with black discal spots and loose blackish cloudings outwardly, these being parts of somewhat indeterminate cross-lines; beneath almost as above, but with ground color more fuscous and less clear; antennæ of ♂ black. Legs light fuscous, spotted with black on coxæ and femora, becoming solid black anteriorly on tibia and tarsi. The single ♂ specimen gives the impression that in newly-emerged specimens the fore wings have a decided olive or greenish shading.

Las Vegas, New Mex., from Mr. Bolter, to whom I dedicate the species.

72. **DYSCIA** Hüb.

Verz. 314, 1818.

Type *conspersaria* Fab.

Psednothrix Hüb., Verz. 319, 1818, type *belgaria* Hüb.

Mæsia Steph., Ills. 3, 150, 1829, type *belgaria* Hüb.

Scodiona Bois., Index Meth. 185, 1840, type *conspersaria* Fab.

Napuca Walk., C. B. M. Geom. 1693, 1862, type *orciferata* Walk.

Palpi moderate or short, slender, subascending or porrect; tongue very short or wanting; front hairy, broad, not tufted; antennæ of ♂ bipectinate to apex; thorax hairy, scaled above, hairy below, without tufts; abdomen scaled, somewhat tufted at end; hind tibiæ slightly or not at all swollen, with all spurs, without hair pencil in ♂; fore wings without fovea at base below, 12 veins, 10 and 11 from cell; hind wings 5 undeveloped, 6 and 7 separate, 8 separate from cell; all wings even, rounded, the fore wings with a tendency to hairiness of vestiture.

Mr. Meyrick joins this genus with *Crocota* Hüb., whose type is *lutearia* Fab., but it is definitely separate by the undeveloped tongue. There is some difference in the length of the palpi, but it is neither marked nor definite; Guenée puts *gilvaria* Fab. and its allies under

Aspilates Treits., and so with his determination *Aspilates* would be a synonym of this genus. But Treitschke did not have that idea of his genus. He had under it discordant material, but none of the earlier named species apply here. The first is *purpuraria* Linn., and this may be taken as the type of *Aspilates*. This is ordinarily catalogued as *Lythria*, but as Mr. Meyrick remarks, *Lythria* is a synonym of *Botys* Latr. afterwards applied, but without right, to a genus of the Pyralidæ.

Mr. Warren, Nov. Zool. vol. i, 437, 1894, calls attention to the fact that *mundataria* Cr. has bipectinate antennæ in ♀, thus separating it from this genus, and calls it *Megaspilates*. But *mundataria* Cr. is type of *Conchia* Hub. Verz. 337, 1818, which, of course, has priority.

Species. — *D. orciferata* Walk.

73. **LYCHNOSEA** Grt.

Trans. Kans. Acad. Sci. viii, 52, 1883.

Type *helviolaria* Hulst.

Palpi long, porrect, heavily scaled; tongue developed; front hair tufted; antennæ of ♂ bipectinate, apex simple; thorax hairy scaled; abdomen slender, smooth; legs long, slender; hind tibiæ long, not swollen, without hair pencil, with two pairs of spurs in both sexes; fore wings even, rounded, without fovea at base in ♂, 12 veins, 10 on 9, 11 from cell, 6 and 7 stemmed; hind wings 6 and 7 stemmed, 5 undeveloped, 8 separate from cell.

Species. — *L. helviolaria* Hulst.

L. intermicata Walk.

74. **SPHÆCELODES** Guen.

Phal. ii, 116, 1857.

Type *vulneraria* Hüb.

Brotis Hüb., Verz. 303, 1818, type *vulneraria* Hüb.

Palpi stout, porrect or subascending, heavily clothed; tongue developed; front hair tufted; antennæ bipectinate in ♂, pectinations moderate, the bases of the antennæ very close together, almost touching; thorax densely haired above and below; abdomen smooth; hind tibiæ not swollen, without hair pencil, with two pairs of spurs in both sexes; fore wings 12 veins, 10 on 9, 11 from cell; hind wings all veins separate, 8 close to cell one-half its length then diverging at a sharp angle.

Brotis Hüb. is preoccupied by Hübner himself, he having given the name previously to another genus of Lepidoptera. The genus is a very peculiar one in the position of the antennæ; the single species has a decided resemblance to the genus *Eudamus* of the Rhopalocera, and is probably a day flyer.

75. **STERGAMATÆA** n. gen.

Type *inornata* Hulst.

Palpi moderately long, recurved, reaching well towards summit of head; tongue strong; antennæ of ♀ filiform; front rounded; thorax hairy scaled, hairy below; abdomen scaled; hind tibiæ with all spurs; wings rather broad, even, rounded; fore wings 12 veins, 10 and 11 stemmed from cell; hind wings 5 undeveloped, 6 and 7 separate, 8 separate from cell.

I have the ♀ only. Its peculiarity, the recurved palpi, is a rare form of structure in the family.

Species.—*S. inornata* Hulst, n. sp.

S. inornata n. sp.—Expands 48 mm. Palpi dark fuscous; front, thorax and abdomen whitish ocher stained with fuscous; all wings of the same color, varying only enough to give faint suggestion of lighter cross-bands basally and outwardly, the limitations of these being scalloped and slightly darker; discal spots fine, black; beneath slightly less ocher, and a broad outer fuscous band parallel with outer margins on all wings.

Female only, Colorado, from Mr. Bruce.

76. **MELEMÆA** n. gen.

Type *magdalena* Hulst.

Palpi moderate, subascending, rather slender, lightly scaled; tongue developed; front rounded, conical, short scaled; antennæ of ♂ bipectinate, apex simple; thorax and abdomen smooth; hind tibiæ of ♂ not swollen, without hair pencil, with all spurs; fore wings without fovea below, 12 veins, 10 from a point with 6 and 9 at end of cell, 11 from cell; hind wings rounded, 5 undeveloped, 6 and 7 stemmed, 8 separate from cell.

Species.—*M. magdalena* Hulst, n. sp.

M. morsicaria Hulst.

M. magdalena n. sp.—Expands 35 mm. Palpi ocher yellow, reddish on outside; front reddish yellow; antennæ yellow fuscous, end of pectinations much darker; thorax yellowish, as is also the abdomen, but the latter has a reddish tinge dorsally; fore wings reddish orange, lighter along costa, becoming straw-yellow towards apex; from costa just within apex this yellow reaches in a rounded loop, broader at middle, to base at inner margin; beyond this following

the same course the red is mixed with yellow, followed again with a strip of yellow reaching from near apex to vein 3; within the first yellow band, and without the second one, are single lines, deep red, with dark scales intermixed, following the same general course, the inner straighter, the outer with deeper loop, the outer beginning at the deep red apex, and both continuing to base; the inner inwardly, and the outer outwardly, are shaded with violet pinkish; hind wings reddish yellow, lighter towards base, more yellowish anteriorly, more reddish about anal angle; a deeper reddish line starting within anterior angle, rounding close to outer margin, then turning inwardly to middle of anal margin; beneath as above, but fainter, but with apex of fore wings bright orange-red.

From Mr. Bruce, Colorado.

A most beautiful insect. Different in its style of ornamentation from any other American Geometer that I know.

77. **ANAGOGA** Hüb.

Verz. 294, 1818.

Type *pulverata* L.

Azinophora Steph., Cat. 126, 1829, type *pulverata* L.

Numeria Dup., Lep. Fr. viii, 107, 1829, type *pulverata* L.

Palpi moderately long, ascending, heavily scaled, end member very small; front tufted; tongue developed; antennæ of ♂ bipectinate to apex, pectinations filiform, of ♀ deeply serrate, almost pectinated; thorax hairy above, woolly below; abdomen loosely scaled, untufted; wings broad, even, rounded; fore wings without fovea below, 12 veins, 6 separate, 10 and 11 from cell separate from each other as well as from 12 and 9; hind wings 5 undeveloped, 8 separate from cell; hind tibiæ not swollen, with all spurs, without hair pencil in ♂.

Species.—*A. occiduaria* Walk.

78. **NEOTERPES** n. gen.

Type *ephelidaria* Hulst.

Palpi ascending, rather long; tongue strong; front close scaled, slightly tufted; antennæ bipectinate in both sexes, in ♂ almost to apex; thorax hairy scaled above, slightly hairy below; abdomen scaled, untufted; hind tibiæ of ♂ swollen, with hair pencil, with all spurs present; fore wings slightly angulate on outer margin, without fovea below, 12 veins, 10 and 11 from cell; hind wings round, or scarcely angled, 5 undeveloped, 6 and 7 stemmed, 8 separate from cell.

This may be the same as *Sicyodes* Warr., but the description, "like *Sieya* Guen., but with the ♀ antennæ pectinated, though more

shortly than in the ♂," is indefinite. If *Sicyodes* be like *Sicya* otherwise, then *Neoterpes* differs generically, as it has a hair pencil on hind tibiae in ♂.

Species.—*N. ephelidaria* Hulst.

N. snoviaria Hulst.

N. edwardsata Pack.

79. **SICYA** Guen.

Phal. i, 104, 1857.

Type *macularia* Harr.

Palpi moderate, ascending, rather heavy, heavily scaled below; tongue developed; front tufted; antennæ bipectinate in ♂, apex simple, filiform in ♀; thorax long haired above, woolly below; abdomen smooth; hind legs not swollen, without hair pencil, with two pairs of spurs in both sexes; fore wings without fovea at base in ♂, angled at 4 in ♂, less so or not at all in ♀, 12 veins, 6 at a point or short stemmed with 7, 10 and 11 from cell; hind wings 6 and 7 stemmed, 8 separate from cell, 5 undeveloped.

Species.—*S. macularia* Harr.

80. **THERINA** Hüb.

Verz. 283, 1818.

Type *prosapia* Linn.

Ellopia Treits.. Schm. Eur. vi, 89, 1827. type *prosapia* Linn.

Palpi short, light, porrect, thinly scaled; tongue developed; front scaled; antennæ of ♂ bipectinate to apex, of ♀ slightly serrate; thorax and abdomen scaled, thorax slightly hairy below; abdomen somewhat tufted at end; hind tibiae generally swollen, without hair pencil, with all spurs; wings broad, rounded, even, or slightly angulate, vestiture thin, rather hairy; fore wings with chitinous cross-bar between submedian and vein 1a near base, probably the outer relic of a fovea, which is even now suggested in both sexes, 12 veins, 10 and 11 from cell; hind wings 5 undeveloped, 6 and 7 separate, 8 separate from cell.

Species:—

T. vitraria Grt.

T. cavillaria Hulst.

T. pellucidaria G. and R.

T. endropiaria G. and R.

T. athasiaria Walk.

T. fiscellaria Guen.

T. fervidaria Hüb.

81. **METROCAMPA** Latr.

Consid. gen. 366, 1810.

Type *margaritata* Linn.

Palpi slight, subascending, not long; tongue developed; front closely scaled; antennæ of ♂ bipectinate almost to apex, the extreme apex simple, of ♀ serrate; thorax hairy scaled above, somewhat woolly below; abdomen scaled, somewhat tufted at end; fore wings without fovea below, even, or slightly angulate, 12 veins; hind wings somewhat angulate, 5 undeveloped, 6 and 7 separate, 8 separate from cell; hind tibiæ swollen, with hair pencil in ♂; larva with 12 legs.

Species.—*M. perlata* Guen.82. **EUGONOBAPTA** Warren.

Nov. Zool. i, 405, 1894.

Type *nivosata* Guen.

Palpi rather short, slender, porrect; tongue developed; front smooth; antennæ flattened, lamellate in ♂; thorax hairy scaled; abdomen slender, smooth; hind tibiæ of ♂ swollen, with hair pencil; two pairs of spurs in both sexes; fore wings costa strongly arched, outer margin even, without fovea at base in ♂, 12 veins, 6 separate, 10 on 9, 11 from cell; hind wings rather long, somewhat angled at 4, all veins separate.

Species.—*E. nivosata* Guen.83. **RIPULA** Guen.

Phal. i, 34, 1857.

Type *mahometaria* H.-Sch.

Palpi moderate, porrect, scaled; tongue developed; front tufted; antennæ of ♂ doubly bipectinate, two pectinations arising from each side of each segment at ends, apex simple; thorax hairy above, densely hairy woolly below; fore wings even, scarcely bent at 4, without fovea at base in ♂, 12 veins, 10 on 9, 11 from cell, 6 shortly stemmed with 7; hind wings cell short, 5 undeveloped, 6 and 7 separate, 8 separate from cell.

Species.—*R. virginaria* Hulst.84. **ENNOMOS** Treit.

Schm. Eur. vi (1), 3, 1827.

Type *alniaria* Linn.*Eugonia* Hüb., Verz. 291, 1818. type *alniaria* Linn.

Palpi rather long, end member longer than usual, long haired below; tongue developed, but not strong; front densely hairy tufted;

antennæ bipectinate in both sexes, apex simple in ♀, not in ♂; thorax densely hairy above and below; abdomen scaled; femora hairy; hind tibiæ swollen, without hair pencil in ♂, with one or two pairs of spurs; fore wings without fovea below, angulate, 12 veins; hind wings angulate and wavy, 5 undeveloped, 8 separate from cell.

Eugonia Hüb., was preoccupied by himself, he having previously given the name to a genus of butterflies.

Species.—*E. subsignarius* Hüb.

E. magnarius Guen.

85. **XANTHOTYPE** Warren.

Nov. Zool. i, 463, 1894.

Type *crocataria* Fab.

Palpi moderate, porrect, bushy; tongue developed; front hairy, somewhat tufted below; antennæ bipectinate in both sexes, apex simple, in ♀ pectinations short, sharp; thorax hairy above; abdomen smooth; hind tibiæ swollen in both sexes, without hair pencil, with two pairs of spurs; fore wings rounded in ♂, dully angulate in ♂ at vein 4, without fovea at base in ♂, 12 veins, 6 separate, 10 on 11, 11 from cell; hind wings of ♂ slightly sinused, of ♀ deeply sinused, from 7 to 5 edge uneven, all veins separate, 5 undeveloped, 8 separate from cell.

Species.—*X. crocataria* Fab.

86. **PLAGODIS** Hüb.

Verz. 294. 1818.

Type *dolobrararia* Linn.

Eurymene Dup., Lep. Fr. vii, 185, 1829, type *dolobrararia* Linn.

Palpi moderate, subascending, rough scaled; tongue developed; front smooth, or slightly tufted; antennæ of ♂ bipectinate, apex simple, of ♀ finely serrate; thorax scaled, somewhat hairy beneath; abdomen scaled, untufted; fore wings without fovea below, 12 veins, 10 and 11 from cell; the wing with a broadly rounded angle at 4, and rounded out inwardly from 3 to inner margin; hind wings 5 undeveloped, 6 and 7 separate, 8 separate from cell; the wings rounded out from 3 to inner margin forming rounded angle at 4; hind tibiæ without hair pencil in ♂, with all spurs, the tibiæ scarcely swollen.

Species:—

P. seriaria H.-Sch.

P. keutzingaria Pack.

P. feridaria H.-Sch.

P. alcoolaria Guen.

P. phlogosaria Guen.

P. emarginaria Guen.

87. **HYPERITIS** Guen.

Phal. 117, i, 1857.

Type *amicaria* H.-Sch.*Probole* H.-Sch., Auseu. Schm. 83, 1855, type *amicaria* H.-Sch.

Palpi ascending, stout, rather long; front rounded, broad, smooth; tongue developed; antennæ bipectinated in both sexes, apex simple, pectinations short in ♀; thorax and abdomen smooth; hind tibiæ scarcely swollen, without hair pencil, with two pairs of spurs in both sexes; fore wings angled at 4, without fovea at base in ♂, 12 veins, 6 separate, 10 at a point, or shortly stemmed with 9, 11 from cell; hind wings with a broad angle at 4, larger in ♂, all veins separate, 5 undeveloped, 8 separate from cell.

Species:—

H. amicaria H.-Sch.*H. trianguliferata* Pack.*H. notataria* Hult.*H. mollicularia* Zell.88. **ANIA** Steph.

Brit. Ent. Hanst. iii, 321, 1831.

Type *limbata*.*Microgonia* H.-Sch., Auseu. Schm. 1855, type *limbata* Haw.*Nematocampa* Guen., Phal. i, 120, 1857, type *limbata* Haw.

Palpi moderate, erect or ascending, light; tongue developed; front smooth, narrow in ♂, quadrate in ♀; antennæ ♂ lamellate, in ♂ filiform; thorax smooth, hairs of patagiæ long; abdomen smooth; legs rather heavy; hind tibiæ in ♂ much swollen, with hair pencil, end spurs small, close together, the outer upper spur normal, the inner lengthened, enlarged at end thus becoming club shaped; hind tibiæ of ♀ normal; fore wings 11 veins, 10 wanting, 11 stemmed with 9, 5 nearer 6 than 4; hind wings all separate, 5 undeveloped, 8 separate from cell.

Species.—*A. limbata* Haw.89. **GONODONTIS** Hüb.

Verz. 287, 1818.

Type *bidentata* Clerck.*Epirranthis* Hüb., 296. 1818, type *obfirmaria* Hüb.*Odonoptera* Steph., Ill. 162, 1829, type *bidentata* Clerck.*Metarranthis* Warr., Nov. Zool. i, 436, 1894, type *obfirmaria* Hüb.

Palpi moderate, or rather long, porrect or subascending, rough scaled; tongue developed; antennæ of ♂ bipectinate to apex, pectinations clavate, antennæ of ♀ sharply serrate; thorax hairy scaled, hairy below; abdomen scaled, untufted; femora more or less hairy;

hind tibiæ somewhat swollen or slightly so, without hair pencil in ♂, with all spurs; fore wings 12 veins, 10 and 11 from cell; without fovea below in ♂; hind wings 5 undeveloped, 6 and 7 separate, 8 separate from cell; wings even, somewhat wavy, or somewhat angled.

Mr. Meyrick joins *Crocallis* Treit. with this. The type of *Crocallis* is *elinguaria* L., which is also the type of *Eusarca* Hub. of the Tentamen. *Elinguaria* is not congeneric with *Gonodontis* however, as the tongue is wanting. I have joined with this genus *Epirranthis* Hüb., the type of which is *obfirmaria* Hüb., which has broad, rounded wings, but which is insensibly connected with the species having waved or angulate wings. Mr. Warren gives the name *Metarrhanthis* to *obfirmaria*, "because *pulverata* has been removed to the Orthostixiæ." *Epirranthis* was created by Hübner with two species under it, *pulverata* and *obfirmaria*. Boisduval, finding them not congeneric, created the genus *Ploseria* with *pulverata* as type, thus leaving *obfirmaria* as type of *Epirranthis*. This was right, and the reference was, so far as I know, universally recognised by systematists till Mr. Meyrick, without explanation, put *pulverata* under *Epirranthis*. I do not believe *Epirranthis* a valid genus, but if so or not, its type is *obfirmaria* Hüb.

Hüb. Verz. 263, 1818, gave the name *Gonodonta* to a genus of Noctuidæ. Under the present recognised law of priority, the name *Gonodontis*, not being a mere distinction of gender, is not a synonym, and must not, therefore, give way to *Epirranthis*.

Species:—

<i>G. hypochraria</i> H.-Sch.	<i>G. formosa</i> Hulst, n. sp.
<i>G. warneri</i> Haw.	<i>G. obfirmaria</i> Hüb.
<i>G. duaria</i> Guen.	<i>G. distichata</i> Guen.
<i>G. pilosaria</i> Pack.	<i>G. antidiscaria</i> Walk.
<i>G. barnesii</i> Hulst, n. sp.	

G. barnesii n. sp.—Expands 38–40 mm. Palpi smoky brown, end member closely scaled, middle and basal members lighter colored and hairy; head rather long haired, smoky ochreous; antennæ about one-half as long as wing, pectinations stout, but rather short, smoky yellow in color; thorax long hairy, yellow, with a smoky tinge, abdomen of same color: fore wings slightly falcate, angled at end of vein 4; the wings are divided into three fields the basal reaching about one-fourth the wing on costa, the same distance on inner margin, rounding outwardly, ochreous yellow in color; the middle field has a considerably darker tinge, and is limited outwardly by a line curving inwardly near the middle and subparallel with the outer margin; this field is on both inner and outer edge within lined narrowly with smoky brown; outer field clay ocher; hind wings

light ocher, darkening outwardly, with dark wavy line near middle; discal spots on both wings distinct, black; beneath dull clay yellow, darkest at costa, outer line faintly showing, discal spots distinct, black. Legs smoky yellow, the fore tibiae in front darker, and the epiphysis dark brown.

Greenwood Springs, Col., from Dr. Barnes. Very much like *G. tusciaria*, of Europe.

G. formosa n. sp.—Expands 40-42 mm. Palpi blackish on sides, whitish at end of hairs below; front dark gray, made of the blackish hairs which are whitish at the ends, or fuscous, the color then being dark fuscous. Abdomen dull white to fuscous, with scattered blackish scales; fore wings even, rounded, dark gray to fuscous basally and outwardly blackish, olive or dark fuscous on middle field; the middle field is edged with a white line on both sides, and in cases where the middle field is faded, the extreme part next the white lines shows as black lines; basal margin of middle field very oblique, beginning subcostally beyond middle reaching the inner margin close to base, after an angulation at cell and again between 1 and cell; outer line beginning near apex, running somewhat inwardly, and with two curves to inner margin; an outer submarginal dark shading, blackish or dark fuscous; hind wings light gray to fuscous, with a broad dark median cross-line, and a broad dark outer field; beneath light fuscous gray with outer line black on all wings, following outer edge of middle field above on fore wings and cross-line on hind wings.

Colorado, Dr. Barnes; S. California, Prof. Riley.

90. **EUCHLÆNA** Hüb.

Verz. 293, 1818.

Type *obtusaria* Hüb.

Endropia Guen.. Phal. i, 122, 1857, type *pectinaria* Schiff.

Palpi moderate or rather long, subascending or ascending, rough haired below; tongue strong; front scaled, untufted; antennæ of ♂ bipectinate, apex simple, of ♀ serrate; thorax scaly hairy above, hairy below; abdomen scaled, sometimes a little tufted at end; hind tibiae of ♂ swollen, with hair pencil, with all spurs; fore wings without fovea below, generally angulate at 4, sometimes wavy, 12 veins, 10 and 11 from cell; hind wings generally angulate at 4, generally waved, running sometimes, especially in the ♀, into scallops, 5 undeveloped, 6 and 7 separate, 8 separate from cell.

Mr. Meyrick uses this generic name in the sense of *Epione* Guen., but I think it must be placed here. Hübner placed three species, *obtusaria* Hüb., *apiciaria* Linn. and *vespertina*, under it. The species were not congeneric. Guenée, not recognising Hübner, erected *Epione*, of which *apiciaria* is type, and with which *vespertina* is congeneric, and put *obtusaria* under his genus *Endropia*. The rules require that Guenée's division shall be recognized, that *Epione*, the first genus described, be recognized as valid, *obtusaria* thus becoming

type of *Euchlœna*. The genus differs from *Epione* in the presence of the hair pencil, and in the simple apex of the ♂ antennæ.

Species:—

E. hilumnaria Hulst.
E. geniculata Hulst.
E. argyllaria Hulst.
E. galbinaria Hulst.
E. manubiaria Hulst.
E. serrata Dru.
E. muzaria Walk.
E. obtusaria Hüb.
E. effectaria Walk.

E. occantaria Hulst.
E. johnsonaria Fitch.
E. amœnaria Guen.
E. vinulentaria G. and R.
E. astylusaria Walk.
E. marginata Minot.
E. pectinaria Schif.
E. sesquilineararia Grt.
E. falcata Pack.

91. **SELENIA** Hüb.

Verz. 292, 1818 (*Eutrapela* Tentamen).

Type *bilunaria* Esp.

Palpi porrect or subascending, quite long, hairy or rough scaled; tongue developed; front with projecting scales or hair tuft; antennæ of ♂ bipectinate to apex, of ♀ sharply serrate; thorax hairy, or hairy scaled, very hairy beneath; femora very hairy; hind tibiæ not swollen, without hair pencil, with two pairs of spurs; fore wings without fovea below, angulated, 12 veins, 10 and 11 from cell, separate; hind wings waved, angulate, 5 undeveloped, 6 and 7 separate, 8 separate from cell; all wings have a transparent lunule at end of discal cell, sometimes much hidden by overlapping scales.

Species. — *S. kentaria* Grt.

S. alciphearia Walk.

S. perangulata Hulst, n. sp.

S. perangulata n. sp.—Expands 44 mm. Palpi yellow ocher, tinged with fuscous; front ocher fuscous; thorax ocher. Abdomen clay ocher; fore wings deep yellow costally at base, washed with deep yellow just beyond discal spot and of the same color below apex and washed with it slightly over outer space; grayish along costa and ocher over rest of wing; basal line blackish, evenly rounded; middle line more diffuse, blackish, including discal spot, slightly bent; outer line blackish, quite straight; hind wings ocher, middle line of fore wings continued, the wing more yellow outwardly; beneath lines more distinct, especially the middle one; on both wings the deep yellow color replaced by orange-brown.

Colorado, from Mr. Bruce.

92. **EPIPLATYMETRA** Grt.

Can. Ent. v, 145, 1873.

Type *coloradaria* Gr.

Palpi long, beak like, ascending or almost erect, end member more or less horizontal, rough scaled; tongue strong; front scale tufted;

antennæ of ♂ bipectinate, apex simple, of ♀ serrate; thorax rather hairy scaled, not tufted, hairy below; abdomen scaled; hind tibiæ somewhat swollen, without hair pencil in ♂, with all spurs; fore wings 12 veins, 10 and 11 from cell, without fovea below; hind wings 5 undeveloped, 6 and 7 separate, 8 separate from cell; all wings strongly angulate.

Close to *Metanema* Guen., differing chiefly in the long, stout, ascending palpi.

Species:—

E. coloradaria Grt.

E. aurantiacaria Pack.

E. groteuria Pack.

E. madusaria Walk.

E. cervinaria Pack.

93. **SYNAXIS** n. gen.

Type *pallulata* Hulst.

Palpi long, ascending, rough scaled, end member horizontal; tongue strong; front somewhat hair tufted; antennæ deeply bidentate in ♂; thorax hairy scaled, hairy below; abdomen scaled, somewhat tufted; hind tibiæ somewhat swollen, without hair pencil; fore wings angulate, without fovea below, 12 or 13 veins, 10 and 11 from cell; hind wings somewhat angulate, 5 undeveloped, 6 and 7 separate, 8 separate from cell.

The only specimen of *pallulata* I have has 13 veins, the 13th reaching from 12 to costa. I am convinced this is only a rare aberration, which, in a number of examples, I have found in other species. Mr. Warren has suggested a genus *Prionotetracis*, Nov. Zool. i, 461, 1894, which might be the same as this genus. He gave as type "*latistrigata* Warr. ined." Neither genus nor species having been described, it does not exist as yet, whether it be the same or different.

Species.—*S. pallulata* Hulst.

S. oblentaria Grt.

94. **PIERNE** n. gen.

Type *parallelaria* Pack.

Palpi long, ascending, beak like, rough scaled, end member horizontal; tongue strong; front cone tufted; antennæ bipectinate in both sexes, apex simple; thorax hairy scaled, hairy below; abdomen scaled, somewhat tufted; hind tibiæ somewhat swollen, with hair pencil in ♂, with all spurs; fore wings without fovea below, strongly angulate, 12 veins, 10 and 11 from cell; hind wings strongly angulate, 5 undeveloped, 6 and 7 separate, 8 separate from cell.

Mr. Warren, Nov. Zool. i, 461, 1894, suggests a genus *Ctenotetracis* by name, without description, and without type mentioned. I am not aware any description has been given. He, it is true, says "it is like *Tetracis*, except the antennæ are pectinated in ♂." This differs very decidedly from *Tetracis* in that the antennæ of the ♀ are also bipectinate.

Species.—*P. parallelaria* Pack.
P. jubararia Hulst.

95. **METANEMA** Guen.

Phal. i, 171, 1857.

Type *inatormaria* Guen.

Palpi moderate, stout, heavily rough scaled; tongue strong; front scaled, sometimes somewhat tufted; antennæ of ♂ bipectinate, apex simple, pectinations filiform, of ♂ filiform or scarcely serrate; thorax hairy scaled or hairy, beneath hairy; abdomen scaled, sometimes slightly tufted; hind tibiæ of ♂ generally swollen, without hair pencil, with all spurs; fore wings without fovea below, more or less angulate and wavy, more decidedly so in the ♀, 12 veins, 10 and 11 from cell; hind wings angulate, 5 undeveloped, 6 and 7 separate, 8 separate from cell.

Species:—

M. inatormaria Guen.

M. quercivoraria A. and S.

M. determinata Walk.

M. textrinaria G. and R.

M. exelsa Streck.

96. **PRYOCYCLA** Guen.

Phal. i, 90, 1857.

Type *armataria* H.-Sch.

Palpi rather long, ascending or erect, stout, tongue developed; front smooth, or slightly tufted; antennæ bipectinate almost to apex in ♂, sharply serrate in ♀; thorax heavily scale haired; abdomen smooth; thorax rather woolly below; hind tibiæ of ♂ somewhat swollen, without hair pencil, rather short, two pairs of spurs in both sexes; fore wings quite evenly scalloped on outer margin in both sexes, without fovea at base in ♂, 12 veins, 6 widely separate, 10 on 9, 11 from cell separate from 10 and 12; hind wings quite evenly scalloped on outer edge, deeper and more irregular in ♀; as in the fore wings, the points of the scallops at ends of veins, 5 undeveloped, 6 and 7 separate, 8 separate from cell.

Species.—*P. armataria* Guen.

P. decoloraria Hulst.

97. **SNOWIA** Neum.

Pap. iv, 95, 1884.

Type *montanaria* Neum.

Palpi rather short, porrect, long haired below; tongue developed; front haired, somewhat tufted; antennæ bipectinate in ♂, pectinations short, clavate, apex simple; thorax densely hairy above and below, with long subdorsal hair tufts above from underneath patagiæ; abdomen smooth; hind tibiæ swollen, with hair pencil in ♂, with two pairs of spurs in both sexes; wings rounded, even, fore wings without fovea at base in ♂, 12 veins, 10 on 9, 11 on cell; hind wings all veins separate, 5 undeveloped, 8 separate from cell.

Species.—*S. montanaria* Neum.98. **STENASPILATES** Pack.

Geom. Moths, 211, 1876.

Type *meskearia* Pack.

Palpi moderate, porrect, very heavily scaled; tongue developed; front scaled, not tufted; antennæ bipectinate in ♂, filiform in ♀; thorax very heavily and loosely scaled with a dorsal crest and with a low, but heavy posterior tufting of scales; abdomen loosely scaled; hind tibiæ without hair pencil, slightly swollen in both sexes, with two pairs of spurs; fore wings outer edge sinuate, more excised below vein 3, the sinuations all more decided in ♀, without fovea at base in ♂, 12 veins, 5 nearer 6 than 4, 6 separate, 10 and 11 from cell; hind wings more deeply sinuate, especially in ♀, all veins separate, 5 undeveloped, 8 separate from cell.

Species:—

S. zalissaria Walk.*S. muricolor* Hulst, n. sp.*S. radiosaria* Hulst.*S. meskearia* Pack.

S. muricolor n. sp.—Expands 34 mm. Much in general markings like *S. meskearia* Pack., but the wings are broader, more even, and the color is a bluish gray or mouse color, darkening on middle field within outer line to blackish olive; discal spots white, of raised scales. In form and general appearance it looks like a bluish gray form of *Azelina peplaria* Hüb.

San Antonio, Texas, from Mr. Rautenberg.

99. **MARMAREA** n. gen.Type *occidentalis* Hulst.

Palpi moderate, subascending, stout, densely haired; tongue strong; front densely haired, tufted; antennæ of ♂ stout, heavy, dentate, somewhat lamellate, flattened, of ♀ filiform; thorax densely long haired, rising into a longitudinal dorsal crest, long densely hairy below; abdomen rough scaled; femora hairy, hind tibiæ not swollen, without hair pencil, with all spurs; fore wings without fovea below,

wavy, angulate, 12 veins, 10 and 11 from cell; hind wings 5 undeveloped, 6 and 7 separate, 8 separate from cell, the wings wavy angulate.

Species.—*M. occidentalis* Hulst, n. sp.

M. occidentalis n. sp.—Expands 40–50 mm. Very much like *Azelina peplaria* var. *hubnerata*, but considerably larger, and heretofore catalogued as the Pacific form of that variety. It may be distinguished by the antennæ of the ♂, and is probably a “species darwiniana,” in which the colors have persisted, while the antennal structure is modified.

California.

100. **AZELINA** Guen.

Phal. i, 156, 1857.

Type *peplaria* Hüb.

Palpi moderate, subascending, stout, generally heavily scaled; tongue developed; front heavily hair tufted; antennæ flattened, naked in ♂; thorax heavily and loosely haired, with a distinct dorsal crest; abdomen loosely scaled; thorax densely woolly below; hind tibiæ not swollen, without hair pencil, with two pairs of spurs; fore wings without fovea at base in ♂, falcate, wavy angulate, 12 veins, 5 nearer 6 than 4, 10 and 11 from cell; hind wings wavy, dull angled at 2, more decided in ♀, 5 undeveloped, 6 and 7 separate, 8 separate from cell.

Species.—*A. peplaria* Hüb. (*hubnerata* Guen.)

A. behrensata Pack.

101. **SYSSAURA** Hüb.

Zutr. ii, 13, figs. 247, 248.

Type *drepanulata* Hüb.

Patalene H.-Sch. Ansen. Schm. 80, 1855, type *fulcularia* Sepp.

Microsemla H.-Sch., Ansen. Schm. 83, 1855.

Hyperythra Guen., Phal. i, 99, 1857.

Hypsostridia Butl., Proc. Zool. Soc. p. 492, 1878.

Palpi short, stout, rather rough scaled, subascending or ascending; tongue strong; front scaled, slightly tufted; antennæ of ♂ bipectinate, apex simple, of ♀ serrate; thorax scaled, somewhat hairy below; abdomen scaled; hind tibiæ swollen, with hair pencil in ♂, with all spurs; fore wings without fovea below, strongly falcate, rounded, 12 veins, 10 and 11 stemmed from cell; hind wings even, rounded, anal angle prominent, 5 undeveloped, 6 and 7 separate, 8 separate from cell.

The description is from the American species as I do not know the type of the genus. Mr. Warren is responsible for the application of this name to the N. A. species heretofore listed under *Drepanodes* Guen. Guenée has two groups under *Drepanodes*, the latter with

pectinated antennæ falling under *Syssaura* Hüb. and the former with simple pubescent antennæ in the ♂, being by Mr. Warren put under *Drepanodes*. Mr. Warren says the species of *Syssaura* have elongate fore wings, and short, straight pectinations of the ♂ antennæ, while the species of *Patalene* have fully pectinated antennæ and less falcate fore wings. Whether these distinctions will hold good I cannot say. They seem scarcely distinctive. *Siculata* is placed by Guenée under the first group (*Drepanodes*), but as he had only the ♀, and as I also have no ♂, I am unable to verify the correctness of the reference. It is quite likely not *Syssaura* in the above sense, as the antennæ of the ♀ are filiform not serrate, and the fore wings decidedly falcate.

Species. — *S. siculata* Guen.

S. syzygyaria Hulst.

S. infensata Guen.

102. **CABERODES** Guen.

Phal. i, 135, 1857.

Type *confusaria* Hüb.

Palpi moderate, subascending, rough scaled; tongue strong; front scaled, scarcely tufted; antennæ of ♂ bipectinate, apex simple, of ♂ serrate; thorax scaled, slightly hairy, hairy below; abdomen scaled; hind tibiæ slightly swollen, without hair pencil, with all spurs; fore wings rounded or very slightly angulate, without fovea below, 12 veins (in one specimen 13), 10 and 11 from cell, stemmed together at base; hind wings rounded or slightly angulate, 5 undeveloped, 6 and 7 separate, 8 separate from cell.

The genus is scarcely to be separated from *Metanema* Guen. Mr. Warren, giving the synonymy, says it is the same with *Apicia* Guen., which it is not, as *Apicia* has hair pencil in ♂. Then Mr. Warren refers the term *Caberodes* for the first species described by Guenée, and puts the American species under *Eusarca* Hüb. as Hübner described *confusaria* under that generic name. But in his description of *Caberodes* Guenée gives the structure of the males, and also gives a description of the larva. Of the species to which Mr. Warren would refer *Caberodes* Guenée says he had the ♀ only, and did not know the ♂, nor the larva. The ♂ described is *confusaria*, and the larva is the larva of *confusaria*. *Caberodes* cannot in anywise be therefore referred to anything but *confusaria*. With regard to *Eusarca* in the Exot. Schmet., there is no pretense to binomial nomenclature, and no generic names can be taken from what is descriptive merely. Hübner's first use of the term in anything like

the binomial sense was in the Tentamen with *elinguaria* as type. So *Eusarca* can in no wise be properly used as a generic term to include *Caberodes*.

Species.—*C. juncturaria* Guen.

C. confusaria Hüb.

C. majoraria Guen.

103. **OXYDIA** Guen.

Phal. i, 52, 1857.

Type *vesulia* Cram.

Palpi moderate, ascending or erect, heavy, densely scaled or haired; tongue developed; front haired, more or less tufted; antennæ flattened, sublamellate, somewhat fascicled with hairs; thorax densely hairy above and below; abdomen smooth; femora haired, hind tibiæ swollen, with hair pencil in ♂, with two pairs of spurs in both sexes; fore wings even, not angulated, without fovea at base in ♂, 12 veins, 6 near 7, 10 and 11 from cell; hind wings rounded, even, 5 undeveloped, 6 and 7 separate, 8 separate from cell.

Species.—*O. zonulata* Hulst.

O. vesulia Cram.

104. **TETRACIS** Guen.

Phal. i, 140, 1857.

Type *crocallata* Guen.

Palpi moderate, subascending, rather heavy, rough scaled; tongue strong; front scaled; slightly tufted, broad; antennæ of ♂ flattened, dentate, naked; thorax hairy scaled, hairy below; abdomen scaled; hind tibiæ of ♂ swollen, with hair pencil, with all spurs; fore wings pointed, angulate, without fovea below, 12 veins, 10 and 11 on cell; hind wings angulate, 5 undeveloped, 6 and 7 separate, 8 separate from cell.

Truxaliata Guen. has ordinarily been regarded as the type of *Tetracis*, but that species is congeneric with *egrotata* Guen., the type of *Sabulodes*. *Crocallata* Guen., described also under *Tetracis*, differs from *truxaliata* generically, and I apply Guenée's generic term to it as type.

Species.—*T. crocallata* Guen.

105. **SABULODES** Guen.

Phal. i, 42, 1857.

Type *caberata* Guen.

Chærodes Guen., Phal. i, 35, 1857, type *transversata* Dru.

Antepione Pack., Geom. Moths 484, 1876, type *depothanata* Grl.

Prochærodes Grl., An. Mag. Nat. Hist. 55, 1883, type *transversata* Dru.

Palpi moderate, scaled, porrect or ascending, rough scaled; tongue strong; front rough haired, somewhat tufted; antennæ of ♂ simple,

flattened, nearly naked, somewhat lamellate, of ♀ simple, filiform; thorax rather long hairy above and below, tufted anteriorly; abdomen scaled, slightly tufted at end; hind tibiæ of ♂ swollen, with hair pencil, with all spurs; fore wings without fovea below, 12 veins, 10 on 11 stemmed from cell; hind wings 5 undeveloped, 6 and 7 separate, 8 separate from cell.

I can see no valid reason why *Sabulodes*, *Antepione* and *Prochærodes* should not be regarded as one genus. *Sabulodes* and *Antepione* have the antennæ of the ♂ more flattened and naked, but the antennæ of *Prochærodes* are flattened and but shortly ciliate. The tendency to the lamellate form of segments is present in all the species though more marked in the *Sabulodes* group. There is some variation in wing shape, but the variation is one of not very wide degree, not of kind. The angulation of the hind wings is not distinctive, as the varieties of *S. transversata* cover both forms. The angulation of the fore wings differs, as does the amount of falcation beneath apex, but this also differs in the single species as well as in the sexes of some of the species. I think when a close examination is made it will be agreed the differences, so far as knowledge at present goes, are more apparent than real. *Oxydia* is very close, and scarcely to be separated. *Politia* Cram. is put by Mr. Butler under the genus *Nepheloleuca*, but I have not been able to find the description.

Species:—

S. truxaliata Guen.
S. lorata Grt.
S. sulphurata Pack.
S. depontanata Grt.
S. novellata Hulst.
S. caberata Guen.

S. anfractata Hulst.
S. catenulata Grt.
S. nubilata Pack.
S. fusciferata Pack.
S. transversata Dru.
S. politia Cram.

106. ABBOTTANA n. gen.

Type *clematata* Ab. Sm.

Palpi moderately long, ascending or erect, stout, heavily scaled; tongue developed; front hair tufted; antennæ of ♂ shortly bipectinate, the pectinations scarcely more than dentations, with a fascicle of hairs at the summit of each; thorax densely hairy above, densely woolly below; abdomen smooth; femora somewhat hairy, hind tibiæ swollen, without hair pencil in ♂, with two pairs of spurs in both sexes; fore wings falcate, very strongly so in ♀, scarcely angulate at 4, without fovea below in ♂, 12 veins, 10 on 9, 11 on cell; hind wings rounded, slightly wavy, slightly angulate at 4, more decidedly so in ♀, all veins separate, 5 undeveloped, 8 separate from cell.

Species.—*A. clemataria* Ab. and Sm.

PALYADINÆ.

This subfamily is tropical, the two species of our fauna occurring only in the southern part of Florida. They are characteristically and peculiarly marked by the absence of the frenulum, which feature may warrant family distinction. The Geometrid character of the family is shown by the strongly marked angle at base of vein 8 in the hind wings.

Synopsis of Genera.

- Abdomen of ♂ untufted.....1. **Palyas**.
 Abdomen of ♂ with lateral tufts on fifth segment.....2. **Phrygonis**.

1. **PALYAS** Guen.

Verz. 307, 1818.

Type *aura* Cram.

Palpi moderate, bushy, ascending, close to front; tongue developed; front narrow, tufted; antennæ of ♂ bipectinate, apex simple, thorax smooth, somewhat tufted posteriorly; abdomen smooth; legs slender, hind tibiæ not swollen, without hair pencil, with two pairs of spurs in both sexes; wings even, rounded, with metallic bands and spots; fore wings 12 veins, 10 on 9, 11 from cell; hind wings all veins separate, 8 close to cell one-half its length, then separating at a sharp angle.

Species:—*P. auriferaria* Hulst.

2. **PHRYGIONIS** Hüb.

Verz. 307, 1818.

Type *argentata* Dru.

Byssodes Guen., Phal. i, 399, 1857, type *argentata* Dru.

Palpi moderate, bushy, ascending, close to front, rather stout; tongue developed; front narrow, short, tufted; antennæ shortly bipectinate in ♂, filiform, slightly flattened, naked in ♀; thorax smooth; abdomen smooth, with subdorsal hair tuftings at extremity of fifth segment in ♂; legs long, slender, hind tibiæ not swollen, without hair pencil, with two pairs of spurs in both sexes; fore wings without fovea at base in ♂, 12 veins, 6 separate, 10 on 9, 11 on cell; hind wings all veins separate; 8 close to cell one-half its length, then separating at a broad angle; all wings with metallic bands and spots; hind wings angled at 4.

Species.—*P. argenteostriata* Streck.

MECOCERATINÆ.

The Mecoceratinæ have scarcely any representatives in our fauna, and this subfamily, while tropical, has few representatives in any part of the world. They are easily recognised by the extreme length and slenderness of the antennæ and legs, which in them becomes a

marked characteristic. The front is very much shortened and the lower part protruded so the proboscis seems to come directly in front of and between the eyes. The venation also is peculiar, 11 being on a stem with 7, 8, 9 and 10, and so far out as to be at its base nearer the end of the wing than the base of the stem.

Synopsis of Genera.

Palpi erect, recurved1. **Mecoceras**.
 Palpi porrect, or subascending2. **Almodes**.

1. **MECOCERAS** Guen.

Phal. i, 388, 1857.

Type *nitocris* Cram.

Palpi erect, recurved, exceeding head, not long scaled, end member short; front with a scale tuft; tongue developed; antennæ very long, bipectinate in ♂, subdentate in ♀, with two spinous hairs at the end of each segment; legs very long, slender, the hind tibiæ with two pairs of spurs; fore wings 12 veins, 3 and 4 separate, 6 separate, 7, 8, 9, 10 and 11 on one stem; hind wings 3 and 4 from a point, 6 and 7 short stemmed, 5 undeveloped.

Species.—*M. nitocris* Cr.

2. **ALMODES** Guen.

Phal. i, 389, 1857.

Type *terraria* Guen.

Palpi rather long, porrect or ascending, slender, rather heavily scaled; front scale tufted; tongue developed; antennæ very long, bipectinate in ♂; legs very long and slender; hind tibiæ with two pairs of spurs; fore wings 12 veins, 3 and 4 separate, 6 separate; 7, 8, 9, 10 and 11 on a stem; hind wings 3 and 4 from a point, 6 and 7 short stemmed, 5 undeveloped.

Species.—*A. terraria* Guen. (*rivularia* Grt.)

MELANCHROIINÆ.

Only one genus, the typical one of this subfamily, has been found in the United States, if, indeed, that has been found here. In our catalogues several species are enumerated, and it is possible all may be found in the extreme south of Florida, but I have been able to find no record of the capture of any of them save *cephise* Cram. within our limits.

This subfamily had always been regarded as Lithosian till its larva was discovered, which showed it to be a true Geometer. It is, however, not typical, as the base of vein 8 of hind wings is scarcely bent, and is not angulated.

The species are brightly colored, as a rule, and decidedly showy in appearance.

MELANCHROIA Hüb.Type *cephise* Cr.

Palpi moderate, porrect, not heavy; front smooth; tongue strong; antennæ of ♂ bipectinate; legs rather long, slender; hind tibiæ with two pairs of spurs; fore wings 11 veins, 3 and 4 separate, 5 wanting, 6 and 7 stemmed; 8, 9 and 10 stemmed, 11 from cell; hind wings 3 and 4 separate, 6 and 7 from a point, 5 undeveloped.

Species.—*M. cephise* Cr.

EXPLANATION OF PLATE X.

- Fig. 1. Fore wing of *Hydriomena trifasciata* Bork. (after Packard).
 " 2. " " *Zenophleps lignocolorata* Pack.
 " 3. " " *Opheroptera boreata* L., ♂ (after Packard).
 " 4. " " *Brephos infans* Moesch (after Comstock).
 " 5. " " *Leucula lacteolaria* Hulst.
 " 6. " " *Synelys enucleata* Guen. (after Comstock).
 " 7. " " *Calledapteryx dryopterata* Grt. (after Packard).
 " 8. " " *Anaploides remotaria* Walk. (after Comstock).
 " 9. " " *Caripeta angustiorata* Walk. (after Comstock).
 " 10. " " *Mecoceras nitocris* Cram.
 " 11. " " *Melanchroia cephise* Cram.
 " 12. Hind wing of *Hydriomena trifasciata* Bork.
 " 13. " " *Dyspteris abortivaria* H.-Sch. ♂ (after Comstock).
 " 14. " " *Eudule mendica* Walk. (after Comstock).
 " 15. " " *Brephos infans* Moesch. (after Comstock).
 " 16. " " *Leucula lacteolaria* Hulst.
 " 17. " " *Synelys enucleata* Guen. (after Comstock).
 " 18. " " *Caripeta angustiorata* Walk. (after Comstock).
 " 19. Humeral angle of hind wing of *Eudule mendica* Walk. (after Comstock).

EXPLANATION OF PLATE XI.

- Fig. 1. Section of antenna of *Caripeta divisata* Walk. ♂.
 " 2. " " *Sympherta marcessaria* Pack. ♂.
 " 3. " " *Gonodontis formosa* Hulst. ♂.
 " 4. " " *Lychnosea helviolaria* Hulst. ♂.
 " 5. " " *Ripula mahometaria* H.-Sch. ♂.
 " 6. " " *Abbottana clemataria* Ab. and Sm. ♂.
 " 7. " " *Erannis defoliaria* L. ♂.
 " 8. " " *Ectropis crepuscularia* Schif. ♂.
 " 9. " " *Marmarea occidentalis* Hulst. ♂.
 " 10. " " *Sabulodes caberata* Guen. ♂.
 " 11. Palpus of *Lytrosis unitaria* H.-Sch.
 " 12. " *Catopyrrha coloraria* Fab.
 " 13. " *Mycterophora longipalpata* Hulst. ♂.
 " 14. Fore tibia of *Fernaldella fimetaria* Grt.
 " 15. " " *Euaspilates spinitaria* Pack.
 " 16. " " *Epimecis hortaria* Guen.
 " 17. " " *Synelys enucleata* Guen.
 " 18. Hind tibia of *Fernaldella fimetaria* Grt.
 " 19. " " *Mecoceras nitocris* Cram.
 " 20. " " *Sabulodes transversata* Dru. ♂.
 " 21. " " *Ania limbata* Haw. ♂.

ERRATA.

Page 249, line 6 from top, for vein absent *read* vein 5 absent.

- " 249, line 13 from top and line 5 from bottom ; also page 254, lines 14 and 15 from bottom ; also page 255, lines 11 and 17 from top ; also page 311, lines 7 and 10 from bottom, for Hydriominæ *read* Hydriomeninæ.

Page 258, line 13 from bottom, for Ennomiinæ *read* Ennominæ.

- " 287, line 13 from top, for Xanthorhæ *read* Xanthorhœ.
- " 289, line 11 from top, for Melanchoria *read* Melanchroia.
- " 298, line 11 from bottom, for *fuscaria* *read* *perfuscaria*.
- " 300, before all species under Leucophthalmia in place of C place L.
- " 303, line 20 from top, for *laretaria* *read* *lautaria*.
- " 317, for Leuculidæ *read* Leuculinæ.
- " 322, line 9 from bottom ; also page 326, line 9 from top, for Choraspilates *read* Chloraspilates.
- " 341, before all species of Enemera, in place of A place E.
- " 343, line 8 from bottom, for insects *read* insect.
- " 368. between lines 6 and 7 from top, place species *S. vulneraria* Hüb.



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11



3



4



12



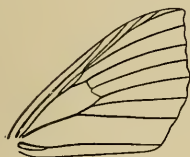
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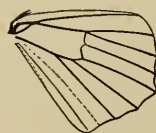
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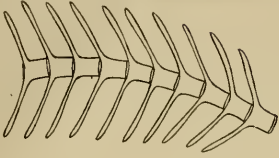
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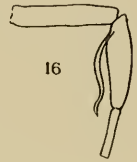
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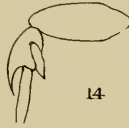
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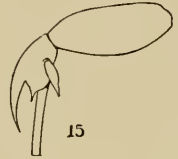
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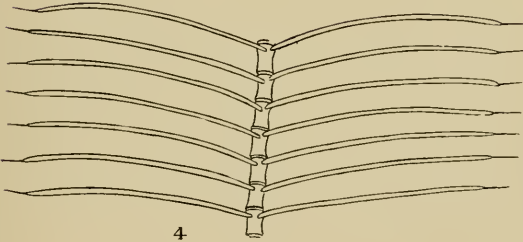
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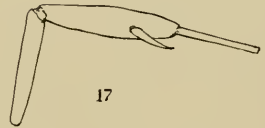
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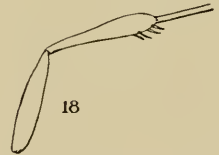
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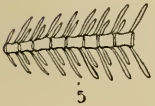
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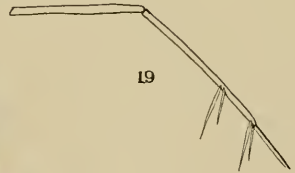
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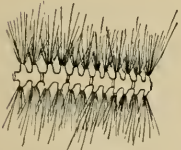
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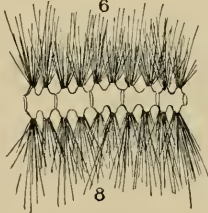
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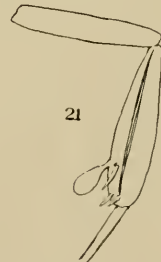
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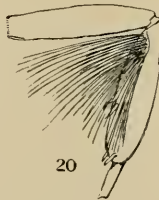
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